Spring 1958

Volume I, Number 2

A Quarterly Journal of Fact and Opinion

Columbia University FORUM

American Architecture: Skin and Bones

Politics at a Safe Distance

The Esthetics of Plenty

U. S. Business and the Common Market

The Trouble with Science Education

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Columbia University FORUM

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LETTERS

The FORUM opens

I am writing to express my appreciation for Volume I, No. 1 of the FORUM. It is refreshing to hear once again a clear cool voice from Morningside.

PETER J. GUTHORN, M.D. Asbury Park, N. J.

You have put out a magazine that can stand with any in the country. Not only is it interesting and entertaining throughout, but there are some important articles here, which should be reprinted for an even wider audience. Fortunately, you have an influential readership for your magazine, a group which may well give some of the ideas you have published the circulation they deserve.

ards, and evidently have insisted that your contributors stay up to them; for there is pleasantly little rambling, no talking down and no professional jargon. You have chosen a diverse group of interesting, intelligent experts to write for us, and you have impressed them with the fact that their audience is well educated and has wide interests. Keep it up!

STANLEY COBEN New York, N. Y.

Concerning Mr. Coben's point about reprinting: The New York Herald Tribune, with permission, reprinted in somewhat condensed form both "The Supreme Court on Obscenity," by Walter Gellhorn, and "Walls and Barriers," by Eugene Raskin, in daily editions of that newspaper. Mr. Raskin's "Walls and Barriers" will also be reprinted in Panorama, an anthology of magazine articles pub-

lished by the Dell Publishing Company.

-EDITOR

I have just received the first issue of your publication, addressed to my son, Frederick, a Columbia Law alumnus. I have taken the liberty of showing it and discussing it with some of my colleagues at the National Press Club . . . You may be gratified to know that during my experience as a free-lance writer and journalist, I have never seen a publication received with such enthusiasm, and that experience covers more than twenty-five years.

GREY LESLIE Washington, D. C.

Congratulations on the FORUM. I read it with interest and pleasure and wish it a long and useful life.

CLIFTON FADIMAN New Canaan, Connecticut

You must be swamped with congratulations, but I must add mine: what a marvelous idea for a journal, and what a splendid beginning! The best of luck to you...

LEON E. SELTZER Stanford University Press

Congratulations on the COLUM-BIA UNIVERSITY FORUM: it is readable, intelligent, and timely. There is room—more than room, a crying need—for a good journal of opinion in this country. I suspect we are going to be getting it as the FORUM develops. In commercial magazines I feel I am doing better than breaking even if I find two articles in an issue [which] interest me. I did three times as well with the FORUM . . . I'm looking forward eagerly to future issues.

> GORDON COTLER Ardsley, N. Y.

I think you are off to a fine start, and as time goes on, you will garner an enthusiastic response from Columbia alumni.

> BENNETT CERF New York, N. Y.

from cover to cover with the keenest delight. The contributors know how to present interesting subjects with an air of authority but without either talking specialists' jargon or talking

down. I should say that the editor understands just what is right for his audience of (presumably) intelligent people who are interested in all sorts of things . . I have compared notes with other Columbia-connected people . . and find them all enthusiastic . . .

MRS. H. F. GARRETT Durham, Connecticut

Since leaving Columbia I have seldom rediscovered in any other Columbia enterprise or publication, as much as I have here, the stimulation and excitement of thought I associate with my "old Columbia days." Columbia and its alumni should be proud—and grateful.

One modest suggestion. Since it is a forum you're conducting, what about a department of readers' points of view . . .?

PAUL F. ANGIOLILLO Professor of Modern Languages University of Louisville

The Forum welcomes letters from its readers about articles in the magazine, about Columbia University, or on any subject which, in the judgment of the Editorial Board, is likely to be of concern to our 90,000 readers, or a large portion of them. Because of limitations of space, we cannot promise to print all letters in full. Address such communications to: The Editor, Columbia University Forum, 411 Low Memorial Library, Columbia University, New York 27, N. Y.

-EDITOR

A cross-section of alumni

The publishing of such a periodical, a forum for the thoughts and opinions of people who are in some way connected with Columbia University, seems to me to be a splendid idea. I am looking forward to receiving future issues . . .

HARVEY ADAM 1935, Library Service Brooklyn, N. Y.

The COLUMBIA UNIVERSITY FORUM promises to be one of the few first-rate magazines we have.

The article by Eric Bentley on Ibsen is a great tribute to Ibsen and has of course the fineness and under-

LETTERS (Cont.)

standing Mr. Bentley reveals in all his writing. Richard C. Wald's article on the news is most timely, as is Samuel Lubell's on public opinion. I brought the magazine to work with me; we are in the midst of a debate on how labor news is covered in the press, and Mr. Lubell's survey touches on attitudes of the very workers AFL-CIO represents...

SALLY GENN 1947 MA, Graduate Faculties New York CIO Council New York, N. Y.

... Almost without exception, the articles were concise, interesting and timely. I know that many readers, like myself, are looking forward to receiving future issues.

LEO W. McCormack 1950 MA, Graduate Faculties Arlington, Virginia

... It has been a long time since a current publication has reached me possessing such high quality of thought, subject matter, and expression as does this, your first publication . . .

J. W. AGER 1903, Engineering Black Mountain, North Carolina

Welcome to the new venture. I am reading it with great pleasure and delight.

THE REV. HENRY H. ROWLAND 1911 MA, Graduate Faculties Berkelev Springs, West Virginia

superior to the old Columbia Alumni News would be British understatement. Such excellent articles and such a wide range of subjects will surely appeal to graduates [and will] rekindle their pride in the greatness of the institution . . .

S. MARSHALL KEMPNER 1919, Columbia College San Francisco, California

I am an alumna of numerous institutions and . . . a scarred veteran ot many alumni bulletins. When I received the FORUM in the mail, I was quite irritated at the waste of paper and at the prospect of glancing at

the nonsense of self-important but illiterate authors and at the forced essays which try to evoke nostalgia and loyalty to yet another alma mater. I am also a librarian by trade and thus have a sense of responsibility for the preservation of the printed word which deserves to be saved. [But I have] a horror of all the other words which swamp and crowd out the relatively few deserving works. I planned to send a curt note requesting that my name be taken from your mailing list so that I shouldn't be subjected to annovance . . . This morning I glanced at the magazine-and lo, I am a convert!

Please continue in a similar vein. Don't become self-conscious, aspire to greater heights, or do anything to destroy the intelligent but relaxed quality that was displayed in the first issue . . . It is most satisfactory and I enjoyed it . . .

ELEANOR H. DE CHADENEDES 1954, Library Service 1957, General Studies Pound Ridge, N. Y.

... This, at last, among all the attempts at continuing alumni education, strikes in the right direction. The FORUM refreshingly assumes intellectual maturity in the ... alumnus. Emerson always acted on the belief that, to call out the best in a man, only the best in him should, in sincerity, ever be addressed. I believe this is not only good altruistic educational theory; it is sound psychology ... So much of the alumni communication from our American universities seems to assume an immature alumnus ...

JOHN M. CHANCELLOR 1921, Columbia College Mount Hood, Wisconsin

It's a wonderful job—content and layout are excellent. The magazine is one in which Columbia alumni can take pride.

Howard Falberg 1954, Columbia College San Francisco, California

The arrival of the COLUMBIA UNIVERSITY FORUM represents completion of an amazingly successful guided evolution of Columbia's alumni policy over the past three years. I have moved from the grudging, if loyal, opposition, who quoted invidi-

ous comparisons with Yale's alumni efforts, to a whole-hearted supporter of Columbia who is about to use his position as a cog in the wheels of the Yale Alumni Fund to point out Columbia's leadership to Yale.

... I am happiest about the assumption, implicit in the FORUM, that the University has an obligation to help its graduates learn long after they have left Morningside Heights...

WILLIAM C. MOHLER 1953, Physicians & Surgeons Baltimore, Maryland

delighted . . . The breadth of interests covered in this first issue is pretty amazing, and yet I found each article of real interest. Usually in any journal there are two or three articles that are either too complex or too silly or too arty for me, but I read all of the FORUM. We look forward to future issues . . .

Mrs. Jane Hunter Pettit 1940, Journalism Hillsborough, California

... I was very much impressed with your project, and certainly the first issue is a remarkable one ...

LOUIS F. BISHOP 1925, Physicians & Surgeons New York, N. Y.

I've read the first issue of the COLUMBIA UNIVERSITY FORUM with much interest. It should prove to be a widely used and highly successful vehicle for the exchange of both fact and opinion.

OLNEY G. SMITH 1947, Law School San Jose, California

From remote places

Many thanks for the FORUM. This promises to be a valuable link between the University and its graduates, particularly those abroad.

E. GUTMANN
The Hebrew University
Jerusalem

As a graduate of our University who has been residing in England since 1949, let me congratulate you... Not only does the FORUM keep me in touch with Columbia... but

the wide scope of its contents makes it an open window on our country for an American living abroad. I look forward to many more numbers.

GIDEON SILVER London, England

I wish to congratulate you on this extremely thought - provoking publication. It is universal in scope, challenging in character, and skillfully edited . . .

> D. A. LOEBER Osteuropa-Recht Hamburg, Germany

. . . including Harvard .

I am delighted with the new COLUMBIA UNIVERSITY FORUM, which I feel is a true reflection of the stimulating academic atmosphere [of] Columbia. It is indeed refreshing to receive such grand Columbiana up here in the provinces! Many thanks...

RICHARD BENEDICK Cambridge, Massachusetts

From other campuses

Allow me to congratulate you and your staff upon the first issue of COLUMBIA UNIVERSITY FORUM, which has just reached me.

As an alumnus of the Columbia Graduate Faculties, I am proud indeed of your efforts and wish you all success.

A. P. COLEMAN President Alliance College

I was very pleased at receiving Volume I, No. 1 of the COLUMBIA UNIVERSITY FORUM. This is a very fine number, and, as an alumnus, I wish to congratulate you on the new venture. May your success continue.

ROY F. NICHOLS

Dean, Graduate School of Arts and Sciences

University of Pennsylvania

. . . I am delighted that the University has seen fit to undertake this project. . . .

WILLIAM O. HECKMAN Department of English and Speech Iowa State College

Of articles and authors

... I liked all of the articles but found Mr. Podhoretz's "Why I Can't Get Through *The Charterhouse of* Parma" particularly stimulating . . .

EVALENE P. JACKSON Emory University, Georgia

... I am particularly interested in "The News According to Whom?" [by Richard C. Wald] and I hope there will be further discussion of this subject. I am disturbed about what purports to be news.

> Mrs. Thomas G. Evans Brooklyn, N. Y.

Is "obscenity a peculiar genus of speech and press which is as distinct, recognizable, and classifiable as poison ivy is among plants"? Justice John M. Harlan, according to Walter Gellhorn's article "The Supreme Court on Obscenity," doubts [there are] such diagnosable qualities about obscenity, and [the author] seems to accept this . . .

. . . It is indeed feasible to diagnose obscenity to the same degree of certainty as one diagnoses heart disease in medicine. This has been done by this writer in various papers, published under the title "Art Immoral or Immortal" . . . in the Journal of Criminal Law and Criminology. The pornographic criteria, consisting in the appeal to [sexual] immaturity, were developed according to Freud's theory of sexual immaturity. In the later of two papers it is shown how the diagnosis is made [according to] nine objective factors of pornography . . . partly emotional, partly stylistic, partly of a social-psychological order . . .

> W. G. ELIASBERG, M.D., Ph.D. New York, N. Y.

Raskin's article "Walls and Barriers."
By revealing the human emotions which give rise to new fashions in architecture, he makes even a "glass box" stirring to the imagination.

ALICE DELMAN New York, N. Y.

... I was particularly interested in the articles by Mr. Lubell and Mr. Burns, and found the former's survey of the American public following Sputnik both informative and surprising.

ROBERT C. SPRAGUE North Adams, Massachusetts

... As one who happens to be in the same trade as Professor Burns, I was particularly pleased to see him as the lead-off man ("An Economist in Government") in this ... issue. There are few economists who write with his ease and literacy. I may add that I have never seen the particular role and qualifications of the economist so neatly and gracefully expounded ...

NEIL HOLBERT New York, N. Y.

Arthur F. Burns, as I recall it, is a professor in a university which provided much staff for the New and Fair Deals, and the seeming air of astonishment with which he reported that highly placed "politicians" may indeed be men of ability struck this reader, in any case, as somewhat boyish.

SEYMOUR FREEDGOOD New York, N. Y.

Please allow me to draw your attention to an error on page 47 of your first number. It is Mr. Fraser who is the instructor in fine arts and is pursuing the Torres Strait natives. Perhaps Mr. Day is the archivist... You might also get together with the Bulletin of the Graduate Faculties as to the amount of the stipend of the Cutting Fellowship.

GEORGE R. COLLINS
Associate Professor of Fine Arts
Columbia University

But for his interpretation of Mr. Fraser's activities in New Guinea. Professor Collins is correct and the FORUM was not. The two winners of William Bayard Cutting Fellowships this year were Douglas F. Fraser, a Columbia instructor in fine arts, and John M. Day, a Columbia graduate student in history. Mr. Fraser is pursuing "a study of the art of the Torres Strait region." Unfortunately, the two winners' names were transposed in the Columbia Chronicle report of their awards. The correct amount of each William Bayard Cutting Fellowship is \$4,500.

-EDITOR

AATHEAA ESTHETICS A GGGGOFGGG YYYYPLENTY

-or Life Under the Cornucopia. An author who thinks he knows what "esthetic standards" used to mean surveys a landscape piled high with Italian shoes, Danish chairs, Incan pots, and Japanese screens.

by JAMES M. FITCH

The stylistic distance between the sterile geometry of the new Seagram Building in New York and the absurd vulgarity of this year's Buick automobile is a measure of the crisis in American design today. It would be hard to find another period in all history which presented such esthetic antitheses. For these two objects do not even belong to the same spectrum of design: one is an aristocratic affectation of poverty, the other a nouveau riche ostenta-

tion of wealth. One draws its forms from Procrustean concepts of mathematical order; the other from the paperback literature of spaceage warfare. And in between these poles, with no more apparent relation to each other than the constellations of the Milky Way, lie all the other artistic phenomena with which our landscape is littered—Tiffany glass and abstract-expressionist painting, wagon-wheel chandeliers and molded plastic chairs, Italian shoes and Danish furniture, Japanese screens and African sculpture, push-button electronic ranges and open-pit charcoal braziers.

James M. Fitch, associate professor of architecture at Columbia, has contributed to a number of national magazines and has been an editor of Architectural Record, House Beautiful and Architectural Forum. He is also the author of American Building: The Forces That Shape it.

There are some odd and contradictory forces at work among us.

One increasingly popular explanation for this

parlous state of affairs, is simply that of our wealth: our design is flabby because we are too rich. The corollary of this thesis is that our design would improve if we were poorer: art thrives only in a garret; artistic creativity requires the astringency of poverty. All this has a fine, mellow ring, but history, unfortunately, gives it no support. High levels of artistic accomplishment occur only in wealthy cultures. Far from being the enemy of artistic productivity, social wealth seems to be its indispensable base. But this proposition cannot be read backwards; great social wealth is no guarantee of great art. If it were, we would not face our present dilemma.

Perhaps we should phrase the question this way: if great wealth produced great art in Fifth-Century Athens, among the Ninth-Century Mayans, or in Fifteenth-Century Florence, why not in Twentieth-Century Detroit? Could it be that our problem is not wealth but the conditions under which it is applied to artistic production?

To ask the question is to answer it. Modern industrial civilization has produced unparalleled social wealth. It has, at the same time, introduced several new and entirely unprecedented factors into the process of design. Only consider:

- Industrial civilization, through mass production, has robbed all of us of first-hand knowledge of how any object is made or how it works. It has correspondingly crippled our ability to evaluate critically the object's practical or esthetic values. It has made the citizen into an ignorant consumer, the designer into a powerless, isolated specialist.
- 2. We have, at the same time, been given a more imperious command of tools for making things and new materials out of which to make them than Pharaonic Egypt, Augustan Rome, or Victorian London ever dreamt of. These tools, these materials confront us with properties, potentialities, and limitations of almost stupefying complexity.
- 3. Pre-industrial limits of time and space have been destroyed. We are exposed to the stimuli of the art and artifacts of all times and places. Into our unready laps is hurled a torrent of dazzling images and objects, ranging the whole world and the whole product of human history and pre-history.

Any one of these developments, taken by itself, would have an unsettling effect upon the esthetic equilibrium of a culture: taken together, their impact threatens to be disastrous.

Esthetic standards, in any period before our own, were strictly conditioned by what one might call the politics of handicraft production. The consumer of the artifact came face to face with its producer. This producer was, at the same time, the designer of the artifact. Under such circumstances, debasement of workmanship or irresponsibility of design was difficult: opportunity for the one and incentive for the other were greatly restricted. The consumer was literate in these matters: if the roof leaked or the shoe squeaked, he knew exactly where to find the designer-producer. Moreover, he was apt to know exactly what was wrong. In a pinch, he could probably patch a roof or make a shoe himself. At the very least, he would know what the craftsman ought to do and how he ought to do it.

Here was a happy situation for the designer as well. He knew intimately the limits and potentialities of his tools and materials. He shared the esthetic standards of the consumer. Any change or modification in design had to be worked out within these mutually acceptable limits. There was thus a constant, personal, and lively interchange between them—a very fruitful relationship for both.

With modern mass production, this relationship is radically altered. Milton W. Brown, the art historian, has described the change most succinctly: "The producer, who is more precisely designated by the old-fashioned term entrepreneur, takes over one of the functions of the earlier consumer, that of ordering and paying for production. The craftsman becomes a designer whose function it is to create an object that can be mass-produced. The consumer is confined to the truncated function of simple consumption through the process of rejection or acceptance of the finished product."

Under such circumstances, both consumer and designer suffer: each becomes progressively more ignorant of the other's requirements and limitations. For the designer, surveys and market analyses replace the give and take of personal

encounter. Less and less able to comprehend the complexity of modern technology, his design becomes more and more superficial, more vulnerable to the pressures of fad and fashion. And the consumer-removed by the same specialization from any first-hand knowledge of what he is buying—can only rely upon somebody else's word. He can only express his contentment (or discontentment) by buying, or refusing to buy, from among the range of artifacts offered by mass production. In real life it is difficult for this consumer to refuse forever to buy essentials-a house, a bed, an automobile: so he is forced ultimately to make his choice from available products, some or all of which may be unsuitable or unworthy. In doing so, he abdicates his power-first his voice in design, then his esthetic standards for judging design.

One of the characteristics of contemporary taste is its intense interest in the art forms of the pre-industrial past—folk, primitive, and prehistoric. The reasons for this interest are clear: these objects display a kind of "organic" unity of form and content, an acute respect for their materials, an integrity of line and color, which is in refreshing contrast to the sleazy eclecticism of so much of contemporary design. These objects are admired for their "honesty" and it is easy to assume that this is a direct expression of a poor and backward culture.

But the fact is that any culture which can produce a thrown pot, a woven blanket or a carved stool is already, by anthropological standards, an advanced and wealthy one. Nor are the admirable qualities of this art due to what V. Gordon Childe, the British archeologist, has called "a penury in raw materials." There was never any shortage of limestone in Yucatan, of potting clay in Etruria, or of wood in Japan. The "penury" confronting the primitive craftsman lay not in the amounts of materials available to him but in their narrow range and variety.

In truly primitive societies, trade and transportation restricted artists and artisans to materials locally available. The desert peoples built of mud, the Siberians of skin and felted hair, the Melanesians of palm leaf and bamboo simply because that was all they had. Their energies

and talents were focused on a very narrow range of materials and techniques: the unity and coherence of their designs express this fact. Though the commerce and technology of the Classic world greatly expanded the range of raw materials available in its centers, the employment of imported materials was largely restricted to luxury goods by the difficulties of transportation. For example, the import of ivory and silk, gold and tin, by the Roman empire did not free most Roman craftsmen from the necessity of working in local materials, nor Roman architects from building of local brick or stone. And while Roman technology was very advanced for its time, it served largely to produce increased amounts of traditional materials; waterproof cement was one of its very few authentically new materials; small amounts of very expensive window glass may have been another.

Under such conditions, design could develop within a fixed palette of materials and techniques. Craftsmen were familiar with both its potentialities and its limitations as—from long exposure to it—were the consumers. Everyone's critical capacities were thus operating over an esthetic terrain which he knew exceedingly well; and the rate of esthetic change was so slow that accommodation to it was relatively easy.

All this has been altered by modern industrial production. The sheer range of materials and techniques with which it confronts the designer is staggering. Mechanized transportation and communication have, for all practical purposes, made the material resources of the whole world available to him. He can use Italian marble, African mahogany, Javanese teak and rubber as easily as Alabama cotton or Louisiana pine. And this plenitude of known materials is, of course, the least result of the modern revolution; technology has also supplied the designer with an ever-widening range of brand-new synthetic materials: steel, concrete, glass, aluminum; magnesium, rubber, and the whole family of the plastics.

This vastly increased range of materials—natural and synthetic, imported and local—is not a luxury line. Such materials have become the basic stock in trade, often supplanting completely the older, more familiar materials. They are available everywhere, to everyone: not a

craftsman or designer alive can be unaffected by their presence. Yet their presence is by no means fully understood. Their physical properties are very complex and their esthetic properties are even more subtle and less explored. And they are dumped upon him in such an accelerating flood that the designer has little opportunity to explore and master them in either practical or esthetic terms.

Though the condition is probably transitory, some areas of the world are still "poor" enough in raw materials to enable us to observe the benign effect of such poverty upon design. For example, it is not accidental that the most brilliant use of reinforced concrete in architecture occurs precisely in those countries which have no steel or wood and plenty of sand and cement-Italy, Brazil, and Mexico. Nor is it accidental that in those design fields where metal is indispensable-e.g. typewriters, autos, trains, etc.—a metal-poor country like Italy leads the world. Here the high cost of metal forces responsibility in design; every ounce of material must be exploited to its fullest capacity. Anyone familiar with Italian auto body work must be struck by the extreme care and imagination with which the metal is manipulated. The elegance of the final form is arrived at directly through a responsible handling of its raw materials. It is almost unkind to compare these cars with their American counterparts. The metal out of which these 4,000 lb. monsters are built, and the gas with which they are propelled through the streets, are both so cheap that any design, no matter how preposterous, is perfectly practicable. Since neither economy nor efficiency of design are permitted him, the designer is forced into irresponsibility—as footloose and fancy-free with his forms and ornaments as any pastry cook.

The traffic in raw materials has, of course, never been as culturally fructifying as the traffic in concepts and ideas. All societies, past and present, have always been subject to the cultural irradiation which follows trade. For artists and artisans the significant instrument of this irradiation is always the art form, whose visual stimulus is stronger than 10,000 words. Thanks to modern archeology, the flux of these

stimuli from one culture to another can now be traced in all its richness and diversity. And it seems apparent that few designers have ever worked in absolute isolation from their neighbors: even in prehistoric times, the extent of cultural intercourse is amazing. Nevertheless, the designers of the ancient world worked under conditions quite different from our own. The Etruscans afford an excellent demonstration of this difference. This gifted people, because they possessed at Elba and Populonia the largest metallurgical complex in the Mediterranean, were the focus of a lively commerce with Greece, Phoenicia, and Egypt. The impact of the art and artifacts imported from these more advanced cultures is readily apparent in the development of Etruscan art. Yet the impact was always successfully absorbed and digested: the rate of irradiation from foreign design was never great enough to overwhelm the Etruscan artists. We may speak of Hellenizing or Orientalizing periods in their art: but the objects themselves remain indisputably Etruscan.

Though this irradiation was steadily to accelerate in Western history-witness the speed and thoroughness with which the idiom of the Italian Renaissance was stamped upon the whole of Europe during the sixteenth and seventeenth centuries-it continued to be more or less successfully absorbed by the cultures involved. Even as late as 1800, a balance was somehow maintained. The architecture of Boston, Philadelphia, or Baltimore, for example, was still a model of esthetic homogeneity at this time. Despite increasing trade with such exotic areas as Africa and Asia, despite a technological revolution by then already well advanced, architects and craftsmen were still confined to a narrow range of familiar forms (Greco-Roman and Renaissance), as well as to a very restricted list of traditional materials (wood, brick, stone, and plaster). All this has changed today: those same cities are now models of visual anarchy. And the change began precisely at this time. when modern technology-allied with modern scholarship-began to make available to American designers not only the world of contemporaneous art but also that of the past,

The development of travel and communication in the nineteenth century was shattering enough. The steamship and railroad, the cable and telegraph, the illustrated book and magazine, the photograph—all of these began to bombard the retina of the American eye with a dazzling range of stimuli. No Etruscan had ever been so bedazzled. And no man of the ancient world had ever been exposed to such unnerving influences as the art museum, the art critic, the art historian, and the archeologist. Their discoveries, like acid, ate away the very foundations of esthetic provincialism, introducing the concept of relativity into what had been absolute esthetic standards. Nor was this experience peculiar to the designer: on the contrary, literate and prosperous consumers were reading the same books, making the same tours, visiting the same museums. Esthetic standards had been, as the chemist would put it, "placed in solution."

Contemporary scholarship continues the process, extending our literacy to unprecedented dimensions. We can be equally familiar with (and fond of) the paintings in the prehistoric caves at Dordogne and those of Caravaggio, with the Japanese farm house and the Pompeiian villa, with Incan cast gold and Victorian cast iron. And anthropologists and sociologists have dissolved another set of provincialisms: we can no longer reject a war club because it was once the instrument of a cannibal nor disdain a Mayan temple merely because of a difference of opinion over human sacrifice. The majesty of these accomplishments of scholarship is apparent; but their effect upon contemporary design is not always benign. To be sure, this cultural irradiation has invigorated giants like Wright or Picasso: we lesser men are often paralyzed. We are told, for instance, that Detroit designers, in styling the 1959 automobile, are turning for inspiration to "a pre-Incan vase . . . a Pennsylvania Dutch cookie mold, the leaf of a tropical plant . . . the art of Michelangelo and a wooden food grater from the Orinoco Indians"! Any of these images might, of itself, be beautiful, though their applicability to autos may seem remote: their superimposition can lead only to anarchy.

To diagnose the sources of our present dilemma in design is, unfortunately, much easier than to prescribe the cure. The accomplishments of our industrial civilization are too real and too profound to relinquish. In the light of modern scientific knowledge, it is clear that the independent artisan cannot adequately feed and clothe and house the world: he cannot now and never could. We cannot very well outlaw new materials or proscribe new techniques: penicillin and space ships are not produced by peasants. Least of all can we censor art or license museums, since these are among the noblest accomplishments of our culture.

It is, apparently, ourselves that we must change. And to accomplish this, we must educate ourselves-educate so much more profoundly than we presently do that the imagination boggles at the task. It is quite beyond the capacities of this writer to attempt the definition of what this new educational process might be: but where design is concerned, a few things are already clear. In a world of increasing specialization, where working hours are more and more devoted to the narrow and special, the rest of life must be devoted to mastering the broad and general. The deep but limited wisdom which comes from first-hand experience must be supplemented by first-rate theoretical understanding. And if industrialism has ruptured the traditional relationships between artist and audience, artisan and consumer, specialist and layman-then new and improved relations must be evolved to replace them. For an age which has split the atom, this should not be impossible: but a rocket to the moon will seem both simple and unimportant by comparison.

American Business and Its Stake in the Common Market

by EMILE BENOIT

How will the revolutionary European Common Market affect American trade? Here are prophesies for both the continental and American economies.

The present recession in the United States has increased the interest of American businessmen in foreign markets, especially European markets. American exports, together with sales by American foreign subsidiaries and licensees, last year came to one-and-a-half times the amount spent on purchases of automobiles and all other such durable consumer goods in the American market place. Several of America's largest firms currently do a third to a half of their total business abroad—including such well-known firms as Colgate, Singer Sewing Machines, Sterling Drug Company, Heinz, and Charles Pfizer.

Most of the European economies have been growing more rapidly over recent years than has our own. From 1950 to 1955 the American economy grew at the rate of 4 per cent a year, as measured by the average annual increase in the production of all goods and services. In the same period the French economy grew 41/2 per cent, the Netherlands 5 per cent, and West Germany 9 per cent. Industrial production increased by 7 per cent in Western Europe in 1956 and by the same proportion in 1957. In the United States it rose only 3 per cent in 1956 and not at all in 1957. In the next few years an entirely new force for growth will be introduced in the European economy—the European Common Market, or, more accurately, the European Economic Community.

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In a nutshell, this is a plan to eliminate during twelve or fifteen years all barriers to trade between six European countries-West Germany, France, Italy, Belgium, Holland, and Luxembourg. Not only will barriers to imports be let down, but it is also planned that capital and labor will move fairly freely from one country to another. Attempts will be made to even out wages and social security costs so as to equalize the conditions of competition. Substantial investment funds are being established under the Common Market Treaty to assist the adjustment of industries to these new conditions, to retrain workers, and to make possible business ventures in Africa, where the European Economic Community is planning extensive investment projects. Attempts will also be made to "harmonize" fiscal and monetary policies among the Six. The European Economic Community was finally ratified in 1957, and began operating formally in January, 1958.

To American businessmen, two aspects of the Common Market agreement are especially important. First, all of the six participating countries will eventually charge identical tariffs on entering American goods. For most products each country will charge the average tariff imposed by the Six on that product in January, 1957. Tariff rates have been relatively high in France and Italy, relatively low in Belgium, Holland, and Luxembourg, and almost as low in Germany. In general, then, US exporters to Belgium, Holland, and Germany will in the next few years find tariffs rising to meet the Common Market's average tariff, while exporters to France and Italy will find tariff rates going down to meet it.

The second matter of immediate concern to American businessmen is that an American company with a production unit anywhere *inside* the Common Market area will ultimately be able to sell to any other part of the Market under no tariffs whatever.

The Common Market will serve almost as many consumers as there are in the American market. Last year, Europe as a whole produced nearly three million automobiles. She could easily be producing five to six million a year by 1972—about the number currently being produced in the United States.

Up until now, European firms have lacked both a market large enough to support mass production and the incentive of free interior competition. Inefficient firms were sheltered behind tariff walls, exchange barriers, and often under cartel arrangements. European business circles have for decades resembled exclusive clubs, keeping business for the insiders and distributing it equitably according to traditional market shares. Such a comfortable business philosophy as this implies offers little incentive to risk, to change settled habits, or to work hard. Economic integration in Europe will break up these cozy, settled business arrangements and offer a continental-sized market to those businessmen willing to take the risk of expanding to the limits of opportunity.

How will all this affect US exporters? Last year we sold approximately \$3 billion worth of goods to the six Common Market countries. Beginning in January of next year, these countries are supposed, under the Treaty, to reduce their tariffs against each other by 10 per cent. By 1962 or 1963 these tariffs will in most cases have been reduced by a full 30 per cent. But the average of tariffs paid by US exporters will remain unchanged: some will drop and others rise, but the average will have remained constant.

Consider a US firm selling electric motors to France and currently paying a 31 per cent duty; its German competitor is also currently paying 31 per cent. Next year the American firm will still be paying this rate, but the German competitor will pay 28 per cent. By 1962, the American producer's duty should drop to 26 per cent, but by that time the German will be paying only 21 per cent. By 1970 or 1973, the American firm may be paying only 16 per cent, but the

German competitor will be paying no tariff at all. Couple this tariff preference with the fact that European industries are almost bound to be strengthened in every way in the next two decades, and you see the difficult future ahead for most or all American exporters.

Nevertheless, there is, for American business, a bright side to the Common Market. As European incomes rise, it should be possible for American exporters to hold or even increase their sales, even though they lose some ground in comparison with burgeoning European competitors. Most of the dollars saved in Europe by shutting out certain of our exports will inevitably be spent on other, more welcome, US products, including agricultural products.

But American manufacturers who cannot meet the competition of, say, German exporters, are discovering that they can literally meet those competitors on their own ground-can become European exporters themselves. By producing in Europe or buying a direct financial stake in a European firm, American producers will gain by all of the provisions of the Common Market Treaty which I have described. A sizable movement of American firms into Europe is already under way, and this will assume the proportions of a tidal wave in the next few years, as the effects of the Common Market become more obvious. European governments will become more vividly aware of the enormous benefits of American investment and will accelerate their campaigns to attract such investment.

Now, foreign investment by American firms takes three forms: Licensing—the renting out by an American firm of patents, trademarks, or production methods to a foreign producer-already brings more than \$100 million dollars to American firms from Western Europe alone. What is known as joint-venturing is a form of partnership between an American and a foreign producer, most often one who is already in business; joint-venturing requires only a limited investment by the American investor and offers certain obvious advantages in dealing with a foreign government, a foreign public, and a foreign business community. (An ambitious study of current joint-venturing is now being conducted at Columbia by scholars in the Graduate Schools of Law and Business.) Finally, a large number of American firms are simply opening foreign plants, either as branch organizations or as foreign subsidiaries wholly owned by the American firm.

With the advent of the Common Market and the letting down of barriers to trade between the participating countries, many firms will be found to be too small and inefficient to survive the difficult competition facing them. This will be particularly true in France and Italy, where inefficient producers have for a long time been sheltered by very high tariffs and quantitative strictions. In the lower-tariff countries-Benelux and Germany—the requirement to raise external tariffs will increase the cost of components (small parts) and semi-processed and raw materials to these countries and so reduce their competitive advantage proportionately. Throughout Europe it will be necessary, if some industries are to survive, for them to modernize their plants and working methods and perhaps transform small, elderly, rather conservative family firms into dynamic public companies. There will of course be many mergers as well. All of these transformations will require capital, lots of it.

In many cases, new products will be needed in which a given firm can specialize, and which it can produce competitively for the whole Common Market.

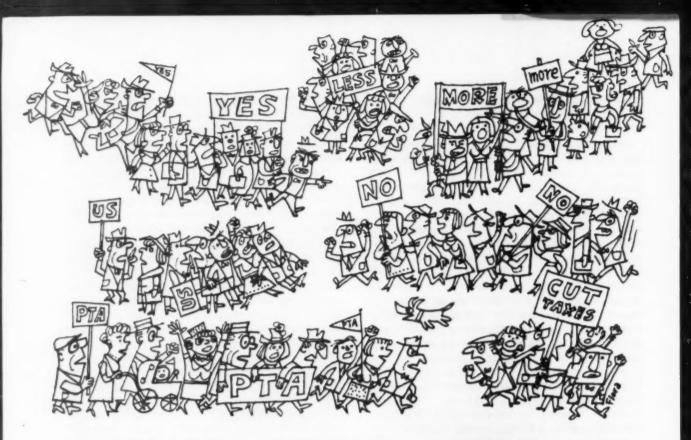
But beyond either capital or new products, European firms in the Common Market may require, for survival, new methods and new management. Here are both investment and managerial opportunities for Americans. American management methods are, for the most part, admired where they are understood in Europethough Americans, too, may learn much from European colleagues. Business relationships in Europe tend to be less impersonal than in the United States, and friendships bulk larger in business dealings. American managers who have a "strictly business" attitude may not do as well in working with Europeans as others who combine an interest in their business with broader intellectual interests and a warmer sympathy for human personality.

It is no secret that the European statesmen who have been trying to create the Common Market have viewed it primarily as a step toward a later political unification in which, alone, they see hope of maintaining Europe's stature and influence in the world. As the French State Secretary for European Affairs told the French Assembly: "We are still living in the fiction of the four great powers. In reality there are only two—America and Russia. Tomorrow there will be a third—China. It depends upon you whether there will be a fourth—Europe. If you fail to make this choice, you condemn yourselves to walking backwards toward the future."

It is imperative that Europe maintain rapid economic growth, not only for its own sake but also to provide the spare resources which can save the underdeveloped countries of the free world from revolution or despair. The fact isand it is a highly unpalatable fact, which few in the West have dared to face-that despite desperate attempts at rapid industrialization the standard of living for a large part of the world's population is not rising perceptibly, and the contrasts between the poor and rich countries are only becoming sharper. Substantial infusions of capital, of technology, and of managerial, engineering, educational, and other professional talent from the Western World will be required to aid these vast populations. In the first postwar decade the United States has supplied (directly or indirectly) most of the resources for foreign investment in the underdeveloped countries. Looking to the future, it seems clear that this burden will have to be better distributed, with Europe carrying an increasing share of the total

The American business community appears to be showing genuine statesmanship in giving moral support to a movement which will, at least at first, increase the discrimination against American exports. It does so with the knowledge that in the long run European economic growth must create new business opportunities both for American exports and for American foreign investment and operations. And, over and beyond financial considerations, many American businessmen recognize that a politically and economically stronger Europe can contribute to the success of the United States' foreign policy.

American efforts to strengthen the Atlantic Community underscore the fact that we consider the great stake to be neither national interest nor economic ideology, but the survival of freedom itself.



The Trouble with SCIENCE EDUCATION

by DONALD BARR

Probably no issue in education has brought forward so many contending views.

This forthright educator suggests we reconsider our teaching methods.

For a few stirring days last October and November, it seemed as if something were at last to be done about America's foundering schools and lagging science. The Russians, whom we thought of as a race of muzhiks wandering over frozen steppes, forever prevented from accomplishing anything by their having to think in a foreign language, had burst out into space. Ten years of warning by a few scientists and teachers had failed to arouse the United States. But now the citizenry would

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surely be aroused. Everyone must surely be asking why we were producing only half as many scientists as the Russians.

The land came alive with panelists and report-releasers, explaining and exhorting. Those who had hitherto been fighting race prejudice blamed our failure on the fact that we do not educate our minorities. Teachers blamed it on the low salaries of teachers. Scientists said that we do not respect scientists. Intellectuals said that mass media stifle the intellect. Anti-intellectuals said that our intellectuals had failed us. Libertarians said that our security restrictions delay research. Most of these statements were true as facts, but weak as explanations. In any case, weak or not, the sum was a damning indictment of our whole culture, not a program

that the worried fraction of our citizens could act on.

President Eisenhower, speaking in Oklahoma City last November, adopted a tone of gloomy urgency over the state of our schools. He cited a report from the U.S. Office of Education that every Soviet high-school graduate has had five years of physics, five years of biology, four years of chemistry, one year of astronomy, ten years of mathematics, and five years of a foreign language. (The same report says that fewer than one third of U.S. high-school students take a year of chemistry; one fourth take physics; one seventh take advanced mathematics.) What the President concretely proposed, however, was undramatic-principally, that every school board and P.T.A. should scrutinize its schools' curriculum and standards to see whether they met the stern demands of the time.

This disappointed the educators. We had all vaguely hoped the Administration would take the wraps off some educational secret weapona mighty program of Federal scholarships, aid to schools, incentives to teachers. Other disappointments were in store for those educators who tried to take advantage of the national shame over sputnik in order to get things done that were a generation overdue. For within a few weeks it was apparent that there was no national shame over sputnik. No emergency programs were offered by the executive branch of the government. Congress was not to sit until the new year, and already the politicians could see that on this issue there were no votes to be gained by statesmanship. Some educators began denouncing as "hysterical" all schemes for bringing science back into the liberal arts. By the time Senator Smith of New Jersey could introduce the Administration bill and Senator Lister Hill the major Democratic counter-proposal, it was only a question of how much too little and how much too late.

Curiously enough, the science teaching situation is not hopeless. It is the President's undramatic proposal which is the essential one, simply because it is a program which the worried fraction of our citizens can act on. The fact is, our high schools are doing poor work. True, they must work under poor conditions. But the conditions are not altogether the fault of that large, vague, incorrigible delinquent, Society.

To begin with, there is a shortage of highschool teachers, especially in science and mathematics. When one asks high-school boys what careers they would like to follow, only a tiny fraction are interested in primary and secondary teaching-and most of these want to teach physical education. Why? Doubtless because teachers' salaries are too low. But they are not so low or so insecure in comparison with the material rewards of other rather popular careers-the law, for example, or "business administration." Doubtless also teachers are not respected by our society. Children absorb the values of their parents, and our popular culture does not value the intellectual. But children do not merely take over their parents' image of the teacher. They see the teacher in the classroom. And what they see is a man without authority.

The old-style teacher was an authoritarian figure. We have changed this, and probably it was wise and progressive to do so; but what children usually see now in front of the class is a manipulator anxiously trying to find some palatable psychological substitute for simple authority. The only authoritarian figure left in the modern school is the coach. This may explain why more boys want to teach physical education than all other subjects combined. Witness: it is not Society that has accomplished this; it is the educational system itself.

The results of this change in teaching methods do not stop here, however. Authority is a simple device; the new pedagogy is subtle, complex, and shifting. It is no longer enough for a teacher to know the subject he teaches. It is far more important for him to know teaching methods. Almost every American community protects its children from the old barbarities of rote and rod by requiring its teachers to have had a substantial amount of course-work in methods and philosophies of education. It is not easy for a trained scientist or mathematician to get permission to teach science or mathematics in high school. Many have tried; few have been allowed to become more than teachers' understudies or irregular drudges, and often their frustration has beeen sharpened by watching mathematics and science classes turned over to music teachers or gym teachers. The solid, kindly power of the teachers colleges and the educational associations stands behind a teacher-certification system based on the psychology, not the content, of education.

Yet in some ways this system is realistic. The pupils who come up to high school at twelve or fourteen would be serious problems to the innocent scientist or engineer who did make his way into the classroom. These pupils have already undergone a long anti-intellectual indoctrination. There are two kinds of anti-intellectualism in American life, and more dangerous than the vulgar kind-which is a debased survival of the frontier spirit—is the intellectual anti-intellectualism which pervades modern elementary education. This view regards the brain as an organ which evolved by natural selection, like the neck of a giraffe or the nose of a dog. Its test of the healthy functioning of the brain is survival value; in other words, one is thinking well when one's thoughts adapt one to the social environment. Ideas are thought of as "instruments," and the test of truth is experience. The more amiable the experience, the more truth it is supposed to contain. School should be a rich, rewarding experience. "Dry" subjects can be made fun by burying them in "real-life situations." If a subject cannot be learned through "real-life situations" at the youngsters' "experience-level" the youngsters are not ready for it. And so on, and so on.

Now, a good high-school mathematics teacher wants the child to understand highly abstract concepts, not merely to memorize and perform operations. This is a child, however, who has learned to read by a method which obliterates conceptual thinking. The first- or second-grade teacher, almost ignoring the rationale of phonics, has based her method on "word recognition"that is, on recognizing arbitrarily presented associations between printed words and spoken words, as if English were Chinese. She has put a premium on guesswork and the sensing of contexts. The child has developed no sense of close responsibility towards the printed page, and he has learned to see there (and everywhere else) what the "total situation" makes him expect to see. The satisfaction he has gotten from reading is the rich reward of having his expectations confirmed and his prejudices authorized, not the humble satisfaction of study. Growing a little older, this child has been encouraged to read "a sentence at a time." He has learned

where to dart his eye to "lift out the main ideas"—a thing which he can do in English because the meaning of an English clause depends on word order, so that the main elements come around according to a regular formula. This child has never learned Latin, because it is a dead language, so he has never encountered a language which, expressing relations by wordendings instead of by word order, must be read closely or not at all. He cannot read poetry or close reasoning.

He has, in fact, already learned to learn certain things and not others.

There was a time when children learned precision and ingenuity under the threat of corporal punishment. This method was based on the notion that intellection was worth the price in pain, and it demonstrated to the child that society put as high a value on intelligence as on deportment. The method was effective for the majority; but it produced bad habits in teachers, wrecked some of the best and most sensitive pupils, and brutalized the slower ones.

So the lash of competition was substituted. Dr. Johnson protested: "I would rather have the rod to be the general terrour of all, to make them learn, than tell a child, if you do thus, or thus, you will be more esteemed than your brothers or sisters. The rod produces an effect which terminates in itself. A child is afraid of being whipped, and gets his task, and there's an end on't; whereas, by exciting emulation and comparisons of superiority, you make brothers and sisters hate each other."

In time yet another method had to be substituted. The pupil was to be measured not against his fellows but against his own potentialities. But this is too subtle, too mysterious for a child to follow. In practice, the pupil loses his capacity to face being measured against any objective standards whatever. The result is that subjects where day-to-day success or failure is objective and clear-cut—subjects like mathematics—put an emotional strain on the pupil. These are the "hard" subjects, to be avoided. . . .

Some of the gravest problems that afflict highschool teaching of the sciences thus come not from general cultural configurations but from the very methods which devoted educators themselves have sold to the public.

What can be done about the schools? Of course teachers' salaries should be doubled. Of course Federal money should help build schools, including laboratory and library facilities. Industry should send exhibits and engineers to high schools to demonstrate the excitements of science. School boards should install training programs in which every elementary teacher already in the schools can learn how to take the natural sense of wonder a young child brings to school and develop it into exacting but still loving inquiry-that is, into science. There should be testing programs to discover the potentially gifted child as soon as possible; and teachers and guidance counselors should watch that child admiringly to discover where his best gifts tend; and he should be taught in a group of his intellectual peers, where he may be challenged; and he should be encouraged to go at his own best rate. Psychologists should conduct research into the psychology of gifts, into the early experiences that make the difference between the thingminded child and the people-minded child. Instead of "accelerating" the bright child-putting him through the same old inadequate courses, but faster-schools should set up "enriched" programs for him.

The old lockstep high-school curriculum, marching ill-assorted squads of children through "science" that consists only of obediently repeating the experiments of Lavoisier and Ohm, should go; and in its place there should be at least three curricula: a "science appreciation" course for those future voters who cannot do the mathematics on which modern science—and modern society—is based; a standard course for the standard student; and a course in real science—original or "open-ended" investigation—for the gifted.

Courses in "life adjustment"—driver safety, consumer education—should be reserved for those children whose innate abilities are such that they can do nothing with life but adjust to it. The three-option system, under which a child, with the help of his mother or his buddy, chooses a "college preparatory," a "business," or a "general" program, should go; the power to elect between mediocrity and hard work should not be given to fourteen-year-olds. Indeed, the whole intrusion of vocational training

into high schools should be given a hard, cold look. Guidance departments of schools and personnel departments of companies should attack the sex-typing of professions—engineering as male, elementary teaching as female—which, as Margaret Mead has pointed out, closes crucial occupations not only to one-half the brains of the United States, but to all except conventionalized and unoriginal personalities.

What are the schools doing? They are doing some of these things, generally in a small experimental way. In Bay City, Michigan, Superintendent of Schools Paul W. Briggs set up an "in-service" training program for elementary school teachers, so that each might become a confident and sagacious science teacher; the very next class to move up into high schools showed an unprecedented interest in the science electives. In Urbana, Illinois, Professor Max Beberman and his colleagues of the University of Illinois Committee on School Mathematics have brilliantly reorganized and modernized the highschool mathematics syllabi; and the students who are learning set-theory, affine geometry, and the calculus in a dozen high schools have discovered that what is rigorous is not necessarily rugged. In Forest Hills High School, New York, Dr. Paul Brandwein and his successor Saul Geffner have set up a "multi-track" science program based on the simple notion that "curriculum" means-as it does-"a running or a race" and that every pupil should run at his own best speed in the classroom and laboratory as well as on the track; and hundreds of students have developed unsuspected speed.

But reforms cost money. The enrichment of a school's curriculum, for instance, costs money; whereas the acceleration of bright pupils saves money. And reforms cost security. Teachers, even dedicated science and mathematics teachers, tend to be intensely conservative personalities. They are conservative through timidity, very often; for though science changes so rapidly that there can be no sound tradition in the teaching of it, yet attempting a new method may very well expose the teacher's own obsolescence in his field. When there is resistance to new work, it comes not from reactionary school boards but from teachers, and not always from older teach-

ers. When an administrator declines to put in a merit-rating scheme for his teachers, it is not because he dislikes the idea himself but because he fears it might drive more teachers out of his school system than it would attract; and he probably has guessed shrewdly as to his teachers' stomach for being rated.

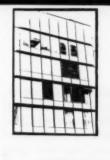
There is an urge to teach—that is, to create living learning rather than paper learning—and an urge to understand that most cunning of mysteries; the child (who is really, of course, the mystery of ourselves). These are irrepressible. And there is enough going on in the school systems of America to save us all, only we have to look for it, and pay for it.

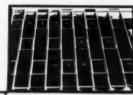
It is a surprising and moving experience to sit in with a staff conference of the Bureau of Educational and Vocational Guidance in the New York City Board of Education, as I did recently. Here are the assistant superintendent, Dr. Morris Krugman, and the director of guidance, Dr. Frances Wilson, and six psychologists, briefcases swollen with Rorschach protocols, Iowa test scores, interview records. There is a list of ten boys and ten girls to discuss. They have high IQ's, all over 130 on the Binet; they are all in the upper one per cent of the population in intelligence. One boy wants to leave

school. Another is failing badly. A girl with a lovely and graceful person, a serene personality, and excellent mathematics and language grades wants to be a policewoman. The psychologists recall, speculate, explain. They will not go on to the next name; there is always more to be said; the child is in difficulty; the case is urgent; the personality of the child is vividly before the conference, which goes on and on. The Rorschachs have been scored on the psychologists' own time; the budget has been made to do miracles. . . .

It is a common fallacy of our representative democracy that every institution in it must be representative in character or else undemocratic in tendency. It is arguable that politicians cannot be asked to go far beyond their constituents' wishes even in order to serve their constituents' interests. At all events, these are no principles to apply to schools. It is no apology for our schools to say that they represent in their standards the values of the masses. Those educators who are waiting for parents and Congress to change before they change their methods are really reverting to the old slave-status of the pedagogue. Those educators who are calling on their own resources to correct and improve education in defiance of the apathy of the public and the complacency of their own guild are the only men who now can rescue us.

american architecture: DOWN TO SKIN AND AND BONES













by ALLAN TEMKO

One style of architecture-nude of body, puritan in spirit-has swept this country in the last fifty years. Where did it come from, who builds it, what does it say?



Many a business executive, looking up from his copy of *Time* recently, must have paused to consider a statement attributed to the president of the Connecticut General Life Insurance Company. This gentleman, whose firm had invested some twenty million dollars in a new headquarters building, protested wistfully—in the manner of Jane Austen's Mr. Bennet, as if he expected no one to listen—that he would have very much liked a fireplace in his private office, but that Mr. Gordon Bunshaft had not permitted this homely touch. Since the building's

Allan Temko is best known as the author of Notre-Dame of Paris (1955), which received extraordinary praise as a study of one building and the civilization which produced it. A 1947 graduate of Columbia College, he studied also at the Sorbonne and now teaches at the University of California at Berkeley.

cost included many expenses not ordinarily seen in a commercial construction project, such as a conspicuous outlay for sculpture, Mr. Bunshaft—chief designer for the architects Skidmore, Owings, and Merrill—must have had other reasons than economy in mind when he denied his client the comforts of the hearth.

His main reason for refusing was in fact an esthetic one. A previous Bunshaft creation, Lever House in Manhattan, had been adversely criticized because of the traditional interiors of its executive suites; and Mr. Bunshaft was not eager to arouse similar criticism again. A fireplace, presumably, would appear illogical in a building otherwise heated (and cooled) by faultless modern engineering. A chimney, yielding wood smoke to the heavens, might mar the neat horizontal lines of a monument since se-

lected by the American Institute of Architects as "one of the ten buildings in America's future." Quite apart from the question of why precisely ten buildings must have foremost places in the future of this country, one may profitably ask what our future is going to be if its architecture is to be dominated by the style which is being increasingly associated with the name of Skidmore, Owings, and Merrill.

The Connecticut Life Building, which stands in gracious rolling country near Hartford, is only one of many ambitious designs to come from a 350-man office which in recent years has achieved a prominence in American architecture comparable to that once enjoyed by McKim, Mead, and White.

How far the taste of this country has progressed in a half-century, however, can be seen strikingly in the differences which exist between Skidmore, Owings, and Merrill's Air Academy, now going up in Colorado, and the Columbia University campus, one of the largest projects executed by McKim, Mead, and White. Compared with the clean, weightless optimism of the Academy, so modestly placed at the foot of the Rockies, the ungainly and impractical buildings which disfigure Morningside Heights come off rather badly. The University, in fact, might well have invited S.O.M. (the abbreviation current among architects) to design its new students' center, not only to be sure of getting a more handsome structure than Ferris Booth Hall promises to be, but also to provide a sense of historical continuity which is proper to the academic mind.

For the S.O.M. "style"-and it will be seen shortly that it is not their style alone-is distinguished, among its other virtues, by a perfection of proportion and a purity of line altogether classical, or neo-classical, in mood. Classical formalism does not necessarily require pilasters and pediments, and, in matters of pure modular design, the Connecticut Life Building and the Air Academy classroom structures are surprisingly close to the Palace of Versailles and the Court of the Invalides. Basically classical forms have merely been stripped of all decorative ornament; rigid proportions remain, but the rich surface texture of a Renaissance or a Baroque building is removed. No projecting cornice, no carven frieze, no elegant capital catches the light and plays with it. Instead, the building is sealed by an expanse of glass, held in a graceful metal skeleton.

The S.O.M. facade has the smoothness—really, the sleekness—of cellophane; and indeed, it has been called "packaged" architecture. The firm delivers visibly similar designs to Radnor, Pennsylvania, and Burlington, Vermont, and Monterey, California, with as little apparent effort as is spent distributing automobiles, refrigerators, and toasters.

The products all bear some resemblance to one another. All are the result of large-scale organization and modern technology. All make claims of virtually universal utility. An S.O.M. building, like an Edsel or a Toastmaster, can function almost anywhere in the United States, and in much of the rest of the world as well, in any size or model. As Frank Lloyd Wright remarked, these structures "are as good by the foot as by the mile." Moreover, S.O.M.'s favorite materials. like those of General Motors, are metal and glass, which are singularly resistant to human or natural imprint. They do not weather, as does stone or wood. They are insect-proof, and moistureproof too if properly treated; and, like most industrial products of high quality, they take an infernally long time to wear out if they are not neglected.

As does an automobile, an S.O.M. building suggests that it has almost nothing to do, personally or regionally, with the people who use it. For, if the same basic structure is found suitable in cities as profoundly dissimilar as Chicago and San Francisco, there is the alarming implication that the occupants are as interchangeable as the buildings. Mr. Wright—and it is tempting to quote him often in this connection, for he has strong ideas on the subject—also speaks darkly of "boxation"; and in a sense these buildings resemble nothing if not ingeniously constructed boxes of steel and aluminum, in which smaller boxes are nested and called rooms.

All this, of course, cannot be laid exclusively, or even mainly, to the charge of S.O.M., who are responsible for comparatively few of the buildings which have provoked Mr. Wright's scorn. In truth, the "style" is scarcely theirs alone, and its history is already more than a century old. It dates back to Paxton's Crystal Palace in London (1851) and, earlier, to garden structures that

were frankly hothouses, as many skyscrapers would be today without their blinds and air conditioning.

In America the style has undergone an uneven development, beginning with iron-front commercial buildings such as the chaste and unassuming structures of the St. Louis waterfront, or the old Harper & Brothers Building in New York. It reached an early culmination in the Chicago of Louis Sullivan, whose Schlesinger and Mayer Store (now Carson, Pirie, Scott) remains unsurpassed as an expression of what architects call cage construction. Mr. Wright himself, in the Luxfer Prism project of 1897, designed a facade in glass and reinforced concrete which he notes rather testily "has since appeared in many guises in many countries." In spite of the eclecticism that dominated US design in the succeeding decades, and resulted in "commercial classicism," the Renaissance palaces of McKim, Mead, and White, and Neo-Gothic towers such as the Woolworth Building, the conception of buildings cloaked in glass remained alive in this country: Willis Polk's Hallidie Building in San Francisco (1917), for all its art nouveau embellishments—perhaps because of them—can match its lively and cheerful facade against anything going up near it, including S.O.M.'s Crown-Zellerbach Building, forty years later.

In Europe, a parallel movement was under way before the turn of the century. The sinuous iron and glass facade of Victor Horta's Maison du Peuple in Brussels was constructed in 1897, and the Glasgow School of Art by Charles Rennie Mackintosh, with its great oblong studio windows, in 1898-1899. Before 1914, in the work of Walter Gropius, appeared a succession of buildings that displayed veritable curtain walls of glass and metal and spiral staircases completely enclosed in glass, articulated with great precision and elegance. Here, at last, was a European rationale—quite distinct from the American—which took full advantage of the lightness and grace made possible by modern materials and technology, and employed them in restrained yet monumental combinations. But the exuberance of Wright's work, first published in Germany in 1910, was missing, as was the sheer poetic control of Sullivan. In their place appeared a new element of refinement.

Now, refinement is a dangerous thing. Gothic

art perished in excessive refinement after a period of unparalleled structural vigor. For once refinement exists for its own sake, it becomes mannerism. In Gropius' early work, refinement was at its most spontaneous and imaginative. The robust massing of elements, the liberal display of brick and other warm materials, the free planes of the roofs, especially in the model factory and office building erected for the Cologne exhibition of 1914, reveal the bonhomie of prewar Germany that was to vanish forever in the next four years.

After the War, in an exhausted and impoverished nation, construction resumed only slowly, and then on strictly limited budgets. But if few buildings were erected in fact, many soared upward in dreams. Among the paper architects of this period, none was more audacious than Ludwig Mies van der Rohe. He designed several all-glass skyscrapers, some of them circular in plan, some oblong, but all characterized by a totally transparent surface. Mies at last gave a name to this kind of construction. He called it "skin-and-bones" architecture.

The description fits. The structure was reduced-refined down-to its skeleton and outer surface. It became pure form. The curtain wall. as conceived by Mies, was the thinnest of skins: wherever possible it became glass, or else panels of exquisitely laid brick. The structural skeleton within, whether of steel or concrete, was as delicately calibrated as the building's size would permit. To dramatize the extreme slenderness of his pillars, in dwellings such as the famous Tungenhat House, Mies plated them with chrome. To make clear that his interior wall surfaces were no more than screens, he divided his open floor plans (directly inspired by Wright's Prairie Houses) with slabs of onyx or marble. These were the only touches of richness he allowed his ascetic creations, and they served mainly to emphasize the austerity of the whole. "Less is More," wrote Mies. Younger men throughout the world, including Gordon Bunshaft, were to take the maxim to heart.

"Less is More." The paradox is worth considering. Mies offered it without irony to a Europe and America surfeited with Beaux-Arts classicism. Western architecture, like an aged emperor, was overburdened with elaborate and heavy

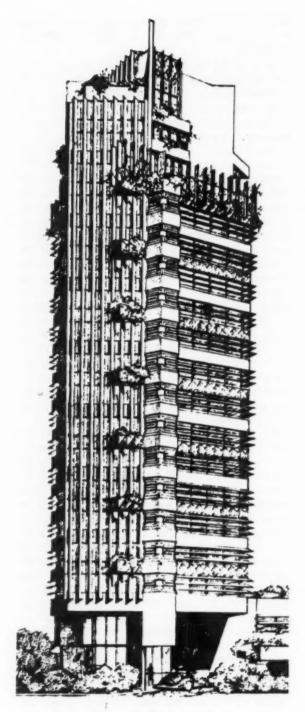
robes. Strip them away, Mies advised, strip away layer after layer, and then strip away more.

It is impossible to overestimate the importance of this moral asceticism in contemporary art and architecture. Mies is much less an heir to Cartesian logic, as his admirers would claim, than to the Puritan tradition of the north. Piet Mondrian, whose rectilinear paintings have a good deal in common with Mies' rectangular buildings, shared the same tradition. The mystique of these men is as deep-rooted, and as dogmatic, as that of the Pilgrim Fathers. In European civilization it goes back at least to Saint Bernard of Clairvaux and the intentionally plain twelfthcentury churches of his Cistercian Order. To accuse Mies' ideology of being foreign to this country is to misunderstand the powerful current in American thought which produced the white villages of New England and their steepled churches, as well as the sober frame dwellings of the Midwestern plains which Willa Cather knew. This tradition is alive today, as mystical and as arbitrary as ever, in the work of Mies' American-born disciple Philip Johnson.

Until 1937 Mies carried on in Europe, building only occasionally, and designing mostly on paper. Then, at last, he came to the United States.

For a man with very little actual construction to his credit, Mies was welcomed as a master builder in a country which had itself produced very little fine architecture during an entire generation. Other Europeans had prepared the way for him: Richard Neutra and R. M. Schindler, who had come in the twenties, and Walter Gropius and Marcel Breuer, who were teaching at Harvard. Mies, too, was accorded an academic post commensurate with his distinction. In 1938 he was named Director of Architecture at the Armour Institute in Chicago, which two years later became the Illinois Institute of Technology. In addition, he was given one of the most extensive commissions any modern architect has enjoyed. He was asked to design the Institute's campus, a project which after twenty years is still unfinished.

Enough has been completed, however, to have exerted an incalculable influence on recent American architecture. These low, interrelated oblong forms, whose smooth plane surfaces are un-



Original drawing of The Price Tower reproduced from A Testament, by Frank Lloyd Wright, published by Horizon Press, New York.

broken by any projection, depend on proportion and fastidious workmanship alone for effect. The entire campus is organized on a standard 24-foot module, and Mies has gone to subtle lengths to give variety to the great bays of glass and of impeccably laid brick. As "skin-and-bones" architecture, conception and execution are fault-less.

And yet there is something phantasmal about these geometrically perfect buildings. In their machined precision, they lack heart. A calm prevails which is not repose—certainly not the repose of an Oxford quadrangle or of Jefferson's University of Virginia-but which seems a willful indifference to human values. There is no softening of line or texture, but only endless repetition of right angles, and of steel, glass, and brick. The chapel, like the other buildings, is rigidly rectilinear, and indistinguishable from the laboratories. All, even the strict staircases, has been subjected to the same puristic discipline. Here is structural refinement carried to almost fanatical length. One yearns to see an irregular brick, but every brick is perfect. There is no surprise—one of the most lovable resources of architecture; there is only predictability.

Mies' intricate architectonic game of chess has given way, in the work of several Americans, to checkers. The American conception has generally been less forbidding, and in Eero Saarinen's sensitively organized General Motors Technical Center of 1951, it has become almost hospitable.

A cheerfulness, in contrast to the monastic severity of the Institute, characterizes the Technical Center, which surely would never have been designed as it was, had Mies not tackled a similar problem a decade earlier. Through warm use of color, including lovely burnt orange and blues, and also thanks to a central lagoon as formally resplendent as the fountains of Versailles, Saarinen has humanized the rectilinear scheme. The idea of a cloister remains, but it would seem now to belong to merry Benedictines, rather than to grave Trappists. And a domed central structure, which might have given a note of coherence to Mies' Institute, as it does to Jefferson's University, provides the group with increased symbolic meaning as a research center. Skidmore, Owings, and Merrill in their Air Academy have also made one significant departure from Miesian doctrine. The cadet chapel—a building which will stand at the center of the Court of Honor, and which has received considerable attention from Congress as well as from the public—will not be an oblong box. It is to be an expressionistic creation, meant to symbolize, against the incomparable background of the peaks of the Rampart Range, man's quest for the unknowable which persists, perhaps more strongly than ever, in this age of an expanding universe.

The proposed design reveals the full measure of S.O.M.'s technical adroitness. A line of tall, pointed tetrahedrons in shining aluminum, very much like a line of swept-wing fighters stood on end, provides the structural envelope of the chapel. The bays between these aspiring ribs of metal will be filled, from top to bottom, with glass. The resemblance to Gothic architecture is obvious. The folded aluminum structure recalls the action of flying buttresses, soaring upward from either side of a great nave, and at last achieving complete verticality in pinnacles and spires. The interior space, with its immense sheets of tinted glass, suggests the Sainte-Chapelle in Paris. But Gothic aspiration, so confident as it lifts dynamically towards Heaven, so robust and masculine for all the openness of the stone frame, is here rendered nervous, brittle, rapid rather than triumphant, and lacking in sureness.

In another respect, too, the design is open to question. Like the Sainte-Chapelle again, the cadet chapel is divided into two levels. In the medieval structure, significantly, the upper room was reserved for the King, his family, and the court; the much less impressive lower room was used by retainers. The soaring main space on the upper level of the cadet chapel is reserved for the one thousand men who will attend Protestant services. Below, in rooms which are spacious, but which lack the drama of the upper church, are a Catholic chapel with a capacity of six hundred, and a Jewish synagogue seating one hundred. Would it not have been more logical to provide three separate buildings for the three faiths, each expressing its uniqueness, and at the same time a fraternal relationship with the others? This was done, with quiet charm, at Brandeis University, in three chapels arranged about a small pool by Harrison and Abramovitz.

Such are the human problems which remain in architecture, and which will always remain, no matter what technical facility a machine gives to architects. One cannot help but wonder, thinking of the First Unitarian Meeting House in Madison, Wisconsin, whose winglike roof extends upward too, but with a gesture as tranquil as hands folded in prayer, what sort of religious structure Frank Lloyd Wright might have designed for the Academy. His chapel at Florida State College, in Lakeland, perfectly at home in the sun, with a monumental sense of permanence, but with a sense of quiet intimacy as well, in which light filters down beautifully through a lantern tower, may give some idea of the sort of building with which he could have provided the cadets. Yet a prophet, for all the lip-service that may be given him in old age, receives few tangible honors in his own country. Why Wright was never given a commission on the scale of the Air Academy by his fellow citizens and why he was not America's representative on the international panel of architects which designed the United Nations Headquarters are questions this nation should ponder.

Today, at eighty-eight, this cantankerous sage is, in Lewis Mumford's splendid metaphor, "the Fujiyama of American architecture, at once a lofty mountain and a national shrine, a volcanic genius that may at any moment erupt with a new plan or a challenging architectural concept or a hitherto unimagined design for a familiar sort of building." To the "skin-and-bones" school of architecture, he opposes his own "organic" philosophy of architecture and life, for to him the two are inseparable. To the cellophane-package skyscraper, he opposes his Price Tower (page 22) which grows from the Oklahoma earth as a tree, its central structural core a trunk, and its cantilevered floors, branches. Greenery, flowing over its balconies, provides it with leaves. Nevertheless this building, which takes such cognizance of the individual, is everywhere constructed "in the nature of materials," It makes use of standard parts, mass-produced by machine technology. Its structural efficiency, according to the architect, is higher than that of conventional cage construction, and its cost (for the inner frame, if not for the entire richly decorated building)

is something like forty per cent less.

Perhaps justifiably, Wright is more celebrated for his homes than for his magnificent business buildings and churches. Here again, he is steadfastly opposed to the "skin-and-bones" philosophy. Rather than the glass-box residence, placed on stilts in the midst of nature as if it despised contact with the earth, such as Mies' Farnsworth House in Illinois, Wright has provided his clients, from the days of his early Prairie Houses until today, with an admirable feeling of shelter and local truth. Few of his houses could be moved to other sites without fundamental modifications in design and structure. His own Taliesen homes in Arizona and Wisconsin, placed in utterly different terrains, are quite naturally utterly different houses, each in harmony with its surroundings, hugging the earth, at one with it, sinking roots or shooting out tendrils in the manner of living plants, on friendly terms with sun or snow, with the cactus or the oak.

That this is Romance, Wright is the first to confess. And like any strong emotion, Romance can be overpowering. His proposed "sky-city," a mile high, is not, as critics suggest, a delusion of extreme age, but a Goethean (some would say Wagnerian) yearning for the grandiose which has a long history. Wright thought of such a structure for the New York World's Fair of 1939.

If Mies and his followers have attempted to create an "anonymous" architecture which appears to be, and in fact often has been, designed by a committee, Wright has passionately refused to eliminate his own vigorous personality from his buildings. If we live or work in them, we find ourselves on close terms with a commanding presence-too close for many people. For those who wish to live by themselves, as much as possible on their own terms, and yet to enjoy the unprecedented technical wealth of our civilization, there must be some middle ground. This is the promised land of which Frank Lloyd Wright has been the chief prophet and it is up to the new generation of architects-Edward Stone, Eero Saarinen, Harwell Hamilton Harris, Robert Anshen, and other younger men whose names are only now becoming familiar to Americans—to prove that this vision of the New Canaan is not a mirage, and that we shall not remain forever in an architectural wilderness.

FRONT END ARITHMETIC



by ANDRE J. deBETHUNE

"And the Lord spake unto Moses . . . on the first day of the second moneth, in the second yeere, after they were come out of the land of Egypt, saying, Take yee the summe of all the Congregation of the children of Israel . . . with the number of their names, every male by their polle: From twentie yeeres old and upward, all that are able to goe foorth to warre in Israel: thou and Aaron shall number them . . ." Thus beginneth the book of Numbers in the King James Version of the Bible, the book of Arithmoi in the Septuagint. At least since biblical times, arithmetic has been a "servant" of man and a bully. Today she builds bridges, roads, and empires, balances budgets and unbalances them, rules commerce, tallies votes, scores games. Arithmetic is the base of all exact sciences, and the science most universally taught to scholars, willing and unwilling, in their young and tender years.

As a child, I was taught arithmetic on two continents. In Belgium, I crossed my sevens and took decimals in my stride with a decimal comma. In America, I uncrossed my sevens and was taught to treat decimals and the decimal point with awe. But there was no basic difference in method, and even today my children do arithmetic in the way that I did then.

Arithmetic has changed a good deal, though,

since the cumbersome numbering systems of the Hebrews, Greeks, and Romans. Logarithm tables and the slide rule have lightened the tasks of the engineer. My own work was recently eased by the wondrous electric calculator and—in my laboratory, at least—I was finally freed from the drudgery of long additions, subtractions, multiplications, and divisions. The touch of a few buttons, and an electric motor purred away, grinding out perfect answers.

But at home, struggling with the grocery bill with the children shouting in my ears, or figuring out 23% of 21/2% (the Commonwealth of Massachusetts' income surtax). I was once again enslaved to longhand arithmetic. I seldom got the same answer twice. The more I repeated my work, the more divergent the results. The cents always matched, but the bank balance had a way of being \$300 off. For me, the only way out was to chuck the old rules and adopt what I call front end arithmetic-a method of pencil and paper arithmetic that saves much of the wear and tear of ordinary computations. It does not lessen the number of steps involved; it merely rearranges the order of the steps and in so doing builds up the most significant digits of the answer first. giving the user a feeling that he knows where he's going-that is, a feeling for what his answer is going to be while he is still at work.

The method puts off computational fatigue to the less significant columns, so that errors are more likely to be in cents than in dollars. It eliminates the awkward burden of the carryover, and it makes all errors easier to ferret out.

Here then, as a tool or a pastime, is front end arithmetic as I have been using it.

Andre J. deBethune received his doctorate in physical chemistry from Columbia in 1945, was a Fellow of the National Research Council from 1945 to 1947 and since then has been on the faculty of Boston College, where he is now a professor of chemistry. He has contributed to a number of scholarly and professional journals.

FRONT END ADDITION: To find the sum. for example, of 1384, 276, 3687, and 2566: Line up the numbers in the proper vertical columns, as usual (Figure 1). Sum up the thousands column first, and write the total 6 under the line in its proper column. This indicates already that the sum will be greater than 6000. Then sum up the hundreds column and write the total 16 in its proper place, with the 6 in the hundreds column and the 1 in the thousands column. The combined total of the first two columns is 6000 + 1600 = 7600, and the final answer will be greater than this. Then sum up the tens column, and write the total 29 in its proper place. The combined sum of the first three columns is 7600 + 290 = 7890, a still closer approximation to the final answer. The units column is summed, and its total 23 is written in its proper place. The final sum is now readily obtained, by mental arithmetic, as 7890 + 23 = 7913.

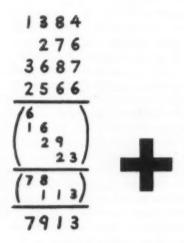


FIG. 1

Parentheses may be convenient to indicate column sub-totals and may be dropped once the final answer is reached. The four sub-totals can also be summed by rear end arithmetic to yield the total 7913. However, the front end technique with pencil and paper requires a second round of column sub-totals: they are 7 in the thousands column, 8 in the hundreds column, 11 in the tens and 3 in the units. This second set of sub-totals can be summed, front end or rear end,

to yield the answer 7913. The answer can readily be checked by repeating the entire sum by the usual rear end method.

The front end method quickly indicates that the answer will be greater than 6000, then greater than 7600, then greater than 7890. Thus is gives a prompt and "convergent" approach to the final answer. At comparable stages of progress, rear end arithmetic would indicate that the sum is greater than 23, then 313, then 1913, numbers which are nowhere near the final result.

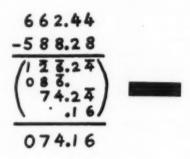
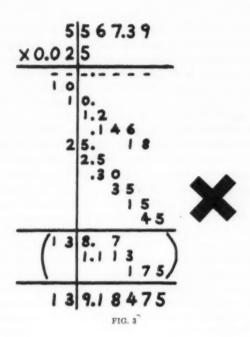


FIG. 2

SUBTRACTION: To find the difference 662.44 minus 588.28: Line up the numbers as usual (Figure 2). Find the algebraic sum of each column, starting from the front end, and write the column sub-sums under the line in their proper places; thus 6-5=1; 6-8=-2, which is conveniently written $\overline{2}$; 2-8= $\overline{6}$; 4-2=2; $4-8=\overline{4}$. The resultant number is $1\overline{26.24}$, a hybrid of positive and negative quantities which needs to be resolved. This hybrid stands for 100 - 20 - 6 + 0.2 - 0.04. It can be resolved quickly, by mental arithmetic, to yield, successively, 80, 74, 74.2, and finally 74.16, the correct answer. The resolution can also be carried out by pencil and paper, as follows. The first two digits of the hybrid are 12. They stand for 10-2=8 or 08. Write 08 under $1\overline{2}$. Lower the 6. Consider next the grouping 86, which means 80 - 6 = 74. Write the 74 under $8\overline{6}$. Lower the 2 and the 4. The grouping 24 means 20-4=16. Write the 16 under $2\overline{4}$. All negative digits are now resolved. Transcribe the lowest digit of each column below the second line, thus: 074.16 or 74.16, the final answer.



MULTIPLICATION: To find 21/2% of 5567.39, i.e., to multiply it by 0.025: Line up the numbers by their front digits (Figure 3). Draw a vertical guide line after the front digits. Locate the decimal point of the answer by counting places from the guide line. In Figure 3 the multiplicand and multiplier have their decimal points three places to the right and two places to the left of the guide line, respectively. In the product, the decimal point will be three right plus two left, or one place to the right of the guide line. Start multiplying from the front end, writing the sub-products in their proper places: $2 \times 5 = 10$, $2 \times 5 = 10$, $2 \times 6 = 12$, $2 \times 7 = 14$, $2 \times 3 = 6$, etc. To locate the proper place of a sub-product, count places to the right of the guide line, e.g., the last digit of the subproduct $5 \times 7 = 35$ must be written four places to the right of the guide line since four is the sum of one place to the right for the 5, plus three places to the right for the 7. Then sum the sub-products. The final answer is 139.18475. Front end multiplication may be cut off at any stage at which the desired degree of accuracy is reached (this is labor-saving) and can be checked by division.

DIVISION: Long division as usually done is already a front end operation. Since division is repeated subtraction, a rear end technique of division could be worked out, but rear end long division would be painfully long indeed! Nevertheless, the accepted technique of long division fits nicely with the front end techniques of addition, subtraction, and multiplication suggested above. One nice trick is to prepare a multiples table for the divisor, by taking 10 times the divisor, and successively subtracting it nine times. Suppose you wish to divide 62.5077 by 2.7. Ten times 2.7 is 27, and nine successive subtractions of 2.7 give the multiples table shown in Figure 4. The division itself presents nothing new or unusual. The decimal point of the quotient is located in the good old-fashioned way. The successive subtractions and multiples of the divisor are carried out, starting at the front end of the dividend, by either front end or rear end subtraction. The use of front end subtraction is shown in Figure 5. The quotient obtained is 23.151, which can be checked by multiplication.

(10)
$$27$$
(9) 24.3
(9) 24.3
(8) 21.6
(7) 18.9
(8) $2.5077 \div 2.7$
(8) $2.5077 \div 2.7$
(9) $2.5077 \div 2.7$
(1) $2.5077 \div 2.7$
(2) $2.5077 \div 2.7$
(3) $2.77 \div 2.7$
(4) $10.87 \div 2.7$
(5) $13.57 \div 2.7$
(1) $2.77 \div 2.7$
(2) $2.77 \div 2.7$
(3) $2.77 \div 2.7$
(4) $10.87 \div 2.7$
(5) $13.77 \div 2.7$
(7) $13.77 \div 2.7$
(8) $13.77 \div 2.7$
(9) $13.77 \div 2.7$
(10) $2.77 \div 2.7$
(11) $2.77 \div 2.7$
(12) $2.77 \div 2.7$
(13) $3.57 \div 2.7$
(14) $2.77 \div 2.7$
(15) $3.57 \div 2.7$
(17) $3.57 \div 2.7$
(18) $3.57 \div 2.7$
(19) 3.57

Front end arithmetic does consume a good deal of paper, it's true, and may not fit readily into the cramped quarters of business and tax forms; but both speed and economy of paper can sometimes be achieved by combining front end and rear end arithmetic. And the two methods are always helpful as checks on each other.

There, dear reader, you have it.

EXCHANGING SCHOLARS WITH THE SOVIET UNION

by HENRY ROBERTS

On January 27, 1958, the United States and the Soviet Union issued a joint communique on cultural exchanges. It proposed that these two nations exchange specialists in radio and television, in industry, in agriculture and medicine, members of cultural, civic, youth. and student groups, movie people, artists, scientists, athletes-and provision was made, in Section X, for "Exchange of University Delegations." Most of these last exchanges are to be brief visits by academic delegations; but Subsection 3 makes a rather more significant provision: the exchange of twenty students, each way, "for the period of the academic year 1958-1959." The number will be thirty for the academic year 1959-1960.

This particular item in the agreement, if it is actually carried out, marks an altogether new phase in postwar Soviet-American scholarly relations. If these relatively long-term exchanges suggest some interesting prospects, they also suggest equally interesting problems, which American educators and the American public would do well to consider.

While there has been an increasing flow of books between the Soviet Union and the United States in the last three years, and while several score of American scholars have benefited from short visits to Russia and Eastern Europe in the past two summers, it is fair to say that up to the

score of American scholars have benefited from short visits to Russia and Eastern Europe in the past two summers, it is fair to say that up to the Professor Roberts' article is based on an address at the Harvard Russian Research Center, sponsored by the Social Science Research Council and the American Council of Learned Societies. Director of Columbia's Russian Institute, he is the author of Russia and America; Dan-

gers and Prospects and writes regularly for Foreign

Affairs.

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present there has been virtually no serious and extended academic intercourse with the Soviet Union since the end of the Second World War. It is an unhappy sign of our time that a whole generation of American students of Eastern European affairs have had to work in isolation from the scene of their interest. Certainly this state of affairs is directly opposed to what we like to regard as one of the older traditions of Western culture: the free movement of scholars and ideas—Erasmus at Cambridge, Diderot in St. Petersburg, George Bancroft in Goettingen.

In recent years, since the death of Stalin, there has been increasing demand for an end to this stalemate. For example, in a meeting in January of this year the Association of American Colleges adopted a resolution urging the "freest possible exchange of knowledge and ideas among the scholars and peoples of the world," with special reference to an exchange of students and teachers between this country and the Iron Curtain nations. The January 27 exchange agreement marks no abrupt change, then, but rather reflects, in the sphere of education and scholarship, a general shift in the temper of the times.

But as soon as we begin to think in concrete terms about exchanging scholars with the Soviet Union, we discover that the purely procedural obstacles encountered in the recent past—visa difficulties, the argument over fingerprinting, and so on—are only secondary. Indeed, the existence of these obstacles may have kept us from serious examination of certain central issues.

First of all, just what is the value of academic exchanges? It is true, and easy, to say that they are a traditional and a necessary component of what the Germans call Lernfreiheit and Lehrfreiheit—the freedom to learn and the freedom to teach. It is also tempting to apply Lord Keynes' observation—"It is astonishing what foolish things one can temporarily believe if one thinks too long alone"—to schools of thought and to nations as well as to individuals.

Nevertheless, there is a danger of making a ritual of exchange and movement, of regarding them unthinkingly as equivalent to scholarship. They aren't. Exchange in itself may be productive of new discoveries and insights, or it may not. At times when I am in a fretful mood and contemplate the vastly increased geographical mobility of American teachers and students in

our air-borne postwar world—people rushing off to give a series of lectures in Bangkok, or participating in seminars on the future of the world in some Tyrolean retreat—I am inclined to regret the day of clerks chained to their benches. There is some danger that the multiplication of opportunities for travel and "communication" may, if not balanced by real self-discipline—and occasional visits to libraries—have a negative rather than positive effect upon our scholarship. But we are rather far from this danger point in Soviet-US exchanges.

Apart from the general, if conditional, desirability of exchange as such, what other arguments are being advanced in support of exchanges with the Soviet Union?

First, there is the argument of simple utility: it is enormously important for an American student of Russia and the Soviet Union to be able to go to the area of his interest. This is not merely the special pleading of scholars in Russian affairs. It is also in the national interest that competent scholars go to Russia. In the context of this argument, having Russian students come to study in the United States may be regarded either as a matter of indifference or as a necessary and justifiable part of the costs of having Americans go to the Soviet Union.

But it may also be desirable to have Soviet scholars come to the United States to teach. Here the essential question is one of quality: is the man worth inviting? Our criteria should be the same as for any visiting scholar. Is he likely to bring us new information, fresh insights, new methods of research and inquiry? Is he a good investment? Obviously a fine sense of discrimination is required, and obviously the value of Russian scholarship and techniques would vary widely from one academic discipline to another.

The second argument now current in support of exchanges with the Soviet Union is quite different. Put most simply, it regards exchanges as a token of, or as an aid to, improving Soviet-American relations. Many people feel that if each side learns to understand the point of view of the other, there might be a reduction of international misunderstanding; or that exchanges are valuable simply because they are reciprocal.

The value of visiting professors, in this view,

lies less in their professional competence than in the fact that they are Soviet professors and visiting. The exchange of students would be for the purpose of general contacts rather than for the pursuit of purely academic or professional concerns. The presence of Soviet students in the United States would not, then, be a matter of indifference, but an important feature of the entire enterprise. We would invest heavily in delegations, conferences, and guided tours—all procedures of marginal value to scholars, I'm afraid.

There is, finally, a third possible line of argument, which we might call that of "in-fighting." Like the second it has political overtones—it is not concerned solely with the acquisition of knowledge—but proceeds from opposite premises: that the tense and hostile relationship between the Soviet Union and the free world is not going to abate and will certainly not be overcome by academic exchange, but that, given the present apparent military stalemate and the lack of areas for effective formal diplomatic maneuver, the prevailing antagonism must be expressed and dealt with in the arena of intellectual engagement and public relations.

According to this view, the weapon of intellect is one of the few which does not necessarily carry the risk of war. We must use it vigorously and skillfully both to protect ourselves and to influence our opponent. It is possible that Americans traveling in the Soviet Union-if they are well trained and on their toes-can break through the crust of ignorance and misinformation that surrounds the Russian people. It is possible that Russians coming here may pick up and take back with them some disquieting ideas. In any event, the general expectation is that such "scrambling," if intelligently handled on our part, may serve-through stirring up new opinions and views-to weaken or modify the hold of the present Soviet regime.

Looked at in this light, the visiting Soviet teacher would be a probable propagandist for the USSR, and the visiting student might be regarded as a potential malcontent upon his return. They would not be just visiting scholars and students, but elements in the cold war.

It is more than evident that these three views, while each favors some pattern of exchanges, have quite different objectives in mind, and quite different points of emphasis. The American stu-

dent in Russia is regarded under the first as a contributor to our general knowledge and understanding of Russia, under the second as an ambassador of good will, and under the third as the possible carrier of disturbing ideas to the Soviet scene. The Russian student in America is seen either as a necessary counterpart to our student in Russia, as a welcome guest, or as a Soviet propagandist who might, however, be influenced by us.

But in planning for academic exchanges, it is useful to distinguish between three quite different functions: learning, teaching, and conferring. On the whole, exchanges of delegations for purposes of conferring are perhaps the easiest to arrange-and the least useful. Conferences or short visits by delegations-in moderation-have some utility, but they do not get us very far by themselves. We have had a number of such experiences in recent years; indeed, they appear to be a principal aim of Soviet proposals regarding exchanges. But while they can be a reasonably innocuous, if expensive, form of activity, one hopes that the present arrangement for exchanges will not, in fact, falter and come to a halt in that sort of activity.

For my part, much the most valuable promise contained in the exchange agreement is that of Americans' being able to enjoy serious study abroad. They should be allowed reasonably long periods of residence in the USSR, at least a year. If it should be a matter of priorities—as it must be if only twenty American students are to go in a year—the selection should be made only among: a) the best men possible; b) those having command of the Russian language; c) those having a reasonable degree of personal maturity and prior training (more specifically doctoral and post doctoral students); and d) those having a research project which cannot be as effectively done elsewhere.

Given the present and probable future limitation in numbers, I would not favor sending undergraduates to Russia, less because they might be led astray than because their interests at that stage in their education are necessarily, and properly, far more diffuse; nor would I favor a scholar who just wants to "broaden his horizons." We should not, however, be concerned exclusively with specialists in Soviet affairs. It would be perfectly appropriate for a student to

wish to consult Diderot manuscripts or local art collections in Russia; but there should be some serious and reasonably well-defined target of study.

We would do well to think in some detail about the prospect of a number of Russian students and researchers settling down on our campuses. Will they present difficulties? It may be said that they should not-that they should be treated just like any other visiting foreign students. But the simple fact is that Soviet students are not like other foreign students. In the first place, if the exchanges are reciprocal, the status of our student abroad may well depend on the status of his Russian counterpart in this country. Here we must ask ourselves: how would the Russian student be received on the campus and in the community? Is he likely to be sought out by the press and constantly challenged either to defend his regime or to denounce it? Is he likely to be punched in the nose by an irate citizen? What part is he to take in university life?

Then, too, and inevitably, there is the matter of security. It is unlikely, for practical reasons, that Russian students would be sent abroad for cloak and dagger purposes—though governments do odd things from time to time. It is more likely, perhaps, that they may pursue a propagandizing mission along with their scholarly assignment. But it does seem obvious that the university cannot assume either police or security functions, nor is it up to the university to decide whether such functions are called for-that is beyond its competence. It can merely decide what actions it can allow on the campus that are compatible with its responsibilities as a free institution of education. This implies, of course, some consultation and discussion with civil authority. It is highly desirable that this work of clarification and definition be done in advance and not after some difficulty has arisen.

The exchange of teachers (teachers as instructors, not teachers as researchers) raises a quite different set of problems, and on the whole this may be the most difficult area of exchange. Teaching is, or should be, a serious business, and not simply because it is a matter of molding impressionable young minds. Teaching appointments should be based on quality and competence

(both of which imply a free intellect), and the urge to exchange for other purposes may impair that basic requirement.

On the other hand, I would not say that no Russian professors should under any circumstances be invited to teach in the United States. At times the behavior of the Soviet government drives one to feel that one wants to have nothing to do with anyone who in any respect may be considered its spokesman. But such feelings, if followed too far, could deny us genuine profit. Here are a few criteria for such invitations:

(a) The university, not the Soviet government, has the right and responsibility to select the man it wants, though the Soviet government may of course refuse to allow him to accept.

(b) The university's choice should be on grounds of demonstrable competence in the man's academic field. There is no reason to invite a second-rater just for the sake of having a live Soviet scholar on the campus.

(c) The choice of fields is very important, since some are far more politically charged than others. Teachers of international affairs, political science, and recent history, for instance, are not likely to be very valuable to American students. Teachers in such fields, inevitably and predictably, must choose between being propagandists or inviting trouble upon their return home. This is fair neither to the American student nor to the Soviet teacher. It is rather childish to try to line up such mutually unprofitable encounters.

It can, of course, be argued that even in these contentious disciplines it would be "interesting" to hear what a Soviet professor has to say. Perhaps it would, perhaps not. But there is a difference between a willingness to listen to and reflect on alien or even unwelcome ideas, and a frivolous curiosity that is looking neither for truth, nor for error, but for a performance, a stunt.

I see no objection to Soviet scholars in these disciplines coming to the United States, nor to their expressing their views, nor to our arguing with them, however fruitful or fruitless this might prove to be. But such activities—individual lectures, debates, panel discussions, and so on—are described more appropriately as conferring than as teaching. To teach involves the assumption of some very definite intellectual and

moral responsibilities towards one's students. Unless these were to be honored, we should be involved in pretense.

The criteria which I have suggested, with respect both to American students going abroad and to Soviet scholars coming to the United States, are obviously based chiefly on scholarly considerations. On the whole these appear to be the soundest principles on which to arrange serious educational exchanges. To go by other criteria—those of winning friends and influencing people—would probably be self-defeating: for unless educational exchange is carried out and judged as education, the consequence could be a degradation of education itself as a real and important index of the quality and vitality of a society.

Most teachers would prefer to have the whole program conducted apolitically. But is this likely? At a point in history when there seems to be a military stalemate of sorts, when diplomacy finds few serious negotiable issues, is it not quite possible, whether one likes it or not, that the whole weight and impulse of these two tremendous political and ideological systems will be brought to bear on one of the few areas of relative mobility and change—the realm of ideas and of cultural activities? Are not these likely to become very active fronts in the "cold war," "peaceful coexistence," or whatever term we are using?

If this is the prospect, then we face obvious risks, for the relations between a free society and a Communist society are not truly reciprocal. There doubtless are dangers in putting into closer touch a pluralistic society such as ours and one that strives to be monolithic. Yet surely the answer is neither to dissociate the world of scholarship from immediate politics-such an act of abdication would weaken one of the most creative impulses within scholarship itself-nor to make scholarship the tool of contending political forces-such manipulation would pervert and ultimately destroy it. Is it not the task of scholarship to be involved in the world's realities precisely so that we may resist being mastered by them? We need to accept the challenge of educational exchanges not solely to avert the charges of preserving an Iron Curtain, but also because entering willingly such an arduous intellectual encounter is what, as free men trying to create a freer world, we should be doing anyway.



THE COMPLEX ART OF BIOGRAPHY

01

All the Doctor
Johnsons



by

[AMES L. CLIFFORD



"It's easy to put together a biography," said one of my novelist friends enviously. "All you have to do is to dig up the facts and string them together in chronological order." A talented biographer recently described the process in *The New York Times* in these words: "You do not need to invent; the beginning, the middle, and the end of your story are already known. All you have to do is

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to tell the truth." According to this point of view there is nothing essentially creative about the writing of a life. The biographer is firmly caught in a web of fact, his imagination hopelessly entangled.

If this were true—and many intelligent people appear to think that it is—biography would be merely a craft. The writer of a life would need to combine only the skill of a detective, the patience of a clerk, and the detachment of a judge.

But can a biographer ever be truly objective? Frankly, I doubt it. In the first place, he normally has more information than he can use. Inevitably he is forced to choose what to include and what to omit, and by this very act of choice he be-

comes involved in the creative process. Only by utilizing every possible piece of evidence could he avoid commitment to a point of view, and even in the most scholarly works this is usually out of the question.

Moreover, all facts are not of equal validity, and someone must decide on the relative degree of authenticity. Again subjective opinion is involved. A date which can be checked and rechecked is one thing. An anecdote told by a friend of the subject of the biography is another. A story surviving in half a dozen different versions, each from an apparently reputable source, is quite another. As every practicing biographer knows, the percentage of details which can be absolutely fixed is very low. Most of the rest have to be sifted and evaluated, filtered through the analytical consciousness of the biographer, and weighed and balanced against a multitude of other imponderable factors. There is rarely any simple yardstick by which to measure the truth of each new fact. It must be carefully fitted into an imaginative concept within the brain of the biographer, and then either accepted or discarded. Perhaps the author is not always aware of what is going on, but there is no denying the nature of the process.

From the very start the biographer is involved with his subject in many subtle ways. When choosing evidence he is subjected to terrific pressures—from his emotional response to the person he is describing, from his own education and environment, and—perhaps most importantly—from the general sensibility of the age. That one man in the nineteenth and another in the mid-twentieth century, having available the same source material, would produce very different portraits is almost too obvious to mention. The shift from prudery to license, from a respect for human reticence to a desire to penetrate deeply into inner motives, has produced an entirely different context for biography.

Even if complete objectivity were possible in a biographer, I am not sure it would be wholly desirable. Of course, what I say does not apply to a scholarly edition or a basic reference work. But when attempting a re-creation of character the mere assembling of evidence is not enough. There must also be intuitive insight, deep understanding, sympathy, and interpretation, all of them requiring creative imagination.

The question is, how much latitude does the biographer have? How far may he use his imagination and still claim to be writing a life and not a novel? What kinds of devices are valid, and what too dangerous?

There is the matter of getting inside the subject's mind. Is it ever legitimate to assume that we know what some other person was thinking at any given time? Some biographers think that it is. We are glibly told that A-, as he walked down the street one fine morning in May, was thinking seriously about his troubles with his wife. Yet even if we knew from old records that the sun had actually been shining all that particular day, and even if we knew that marital problems had been uppermost in his mind for some time, it is obvious that the whole scene is completely fictional. We cannot be certain of what A- was thinking. He may have been musing over something entirely irrelevant. The argument that the picture is metaphorically true and does not actually distort character appears to me to be dubious.

There is a similar device which is more defensible. Suppose B-, in a long letter to an absent friend, describes in some detail his morbid thoughts. The biographer, suppressing the fact that the evidence comes from a letter. describes B-'s thoughts, as if he were inside the man's mind. Of course, this kind of re-creation does have some validity. Yet thereis always the possibility that the depression had been conveyed in the letter merely for dramatic effect. It is quite conceivable that a man might write a dismal, despairing letter one morning to one correspondent, and on the same afternoon another to someone else in a happy, placid tone, full of optimistic predictions. Which one could be said to represent the "real" mood of that day? Suppose that only one of the two letters should survive to be discovered by his future biographer!

An inconspicuously placed "perhaps" or a "possibly" may get the biographer out of this difficulty. Lytton Strachey set the pattern in the remarkable closing scene of his *Queen Victoria*. "Perhaps" Victoria, as she lay dying, remembered the spring woods at Osborne, Lord Palmer-

ston's queer clothes, Albert in his uniform, or Lord M. dreaming at Windsor. No one can prove him wrong. Possibly she did. But the reader tends to forget the protective qualification and remember as vivid fact what is purely hypothetical.

That the device is dangerous no one will deny. And yet surely there are times when the risk is worth taking. When there is some historical evidence to back up the assumption, and when the reader will not be seriously misled on a vital point if the guess is wrong, a creative biographer should be able to take some liberties with his material. To illustrate the point, let me use one small incident in the early life of Samuel Johnson.

For about two years, from 1726 to 1728, before he was able to go to Oxford, the youthful Johnson was forced to remain at Lichfield in his father's bookshop. He was through with his Grammar School education, and apparently there was no prospect that he would be able to continue further. Suppose that one were to describe him as unhappily watching his old schoolmates, many of whom he knew to be foolish and stupid, going up to the universities, as listening hungrily to their accounts of college pranks and of the vagaries of their tutors, and as imagining himself, with ill-repressed longing, in such surroundings. How far would such a description be justified?

There is little contemporary evidence. We cannot be absolutely certain that Johnson talked to any of his former schoolmates about their college experiences or their tutors. So far as we know he never unburdened himself about his unhappiness in his surroundings. And yet I think that the chances are almost ninety-nine to one that the re-creation is true.

From the researches of scholars, we know that many of Johnson's Lichfield playmates did go to the universities during this period. We know their names and something about them. We know from Johnson's own fragment of an autobiography, and from his later remarks, that he considered himself their superior mentally. Moreover, there is the story told Boswell by Edmund Hector, one of Johnson's earliest friends, that Andrew Corbett, a well-to-do boarder at the Lichfield Grammar School, had generously offered financial aid because he knew so well Johnson's eagerness to go to the university. Add

to all this the known character of Johnson as a young man—moody, distraught, dispirited—and practically all the elements of the description are accounted for.

I have cited this example because it seems to me to illustrate legitimate imaginative creation. When there is sufficient authentic evidence from the records to suggest the amplification, and when it accords with normal human experience as well as with the total picture of the subject of the biography, then one may depart temporarily from strict historical relation.

Of course, any biographer, however slipshod and careless of the truth, will claim to have followed my prescribed formula. Therein lies its danger; there is no denying that it does open the doors to the most flagrant kind of fictionalizing. Yet without some experimenting of this kind, a biography tends to be merely a dry compilation of facts. Without some license to the imagination biography becomes lifeless and dull; with too much it becomes fiction. Surely somewhere in between there is a sort of golden mean, which the successful biographer must find—a kind of justifiable calculated risk taken with eyes open and with all possible precautions.

When a writer dramatizes a scene to such an extent that he gives visual descriptions of events for which he has no genuine evidence, it seems to me he violates his contract as a biographer. It would be easy to point out specific examples in recent books where this is done. Events are described with dramatic effect—doors slam, chairs are pushed away from tables, speakers smile or frown, talk is easy and fluent—all of it with no supporting historical authority. This we at once recognize as popular fictionalized biography.

The sober scholar has no difficulty in pointing out deficiencies in this kind of writing, and is properly scornful. But must we, then, throw out all use of physical description unless quoted from some specific documentary source? Not at all. Again it seems to me that there is a permissible middle ground, which a sensible biographer will strive to attain. Using the vast body of available periphery material, he can place his subject in a vivid setting, and still not indulge in fanciful fiction. He has every right

to sketch in the background with as much color as possible, again assuming the authenticity of the diverse material used.

Another problem, even more puzzling, is the handling of differing accounts of the same episode. The historian and the scholarly biographer merely list the variant versions and make the reader judge for himself what actually happened. The creative biographer, on the other hand, may produce an imaginative fusion of the several versions, presenting the reader with a single hypothetical account. Using all the information available, not only concerning this particular episode but also in relation to the people involved, and evaluating the credibility of each authority, the author may synthesize the evidence into what appears to him to be the most credible story. Again, there is risk. The reader is given no opportunity, without serious research on his own part, to check the reliability of the final account. He is completely dependent on the honesty and good judgment of the author. Yet who is better prepared to make such a synthesis?

For my part I am convinced that there can be no hard and fast rule about making composite versions. Sometimes justified, they are at other times to be avoided. Take, for example, two separate incidents from Johnson's early years.

Probably shortly after his marriage to the widow twenty years his senior, whom he called "Tetty," and while he was conducting the illfated school at Edial. Johnson is supposed to have attended the performance of some strolling players in the Guildhall in Lichfield. When he happened to guit his chair for a moment, and it was taken by another man who rudely refused to give it up, Johnson is reputed to have picked up chair and man and hurled them both into the pit. Three of the best known of Johnson's contemporary biographers - Sir John Hawkins, Mrs. Thrale-Piozzi, and Boswell — tell the story, but with varying details. The fullest account comes from Hawkins. Yet all three admit that the great actor. David Garrick, who presumably watched the affair, was their sole authority.

What, then, should the biographer do? Must he quote all versions? Or should he quote only the very full but stylistically involved account by Hawkins? Or may he put together a smooth composite anecdote using what seems most credible from each source? To me the latter appears much the best choice. When there is only one primary source, who may himself have varied his account depending on his audience, it is the duty of the modern biographer to reproduce as closely as he can what he thinks actually occurred.

Another kind of decision comes with one of the most celebrated incidents in Johnson's early life, his reputed knocking down of the insolent publisher Osborne with a huge folio volume. For this colorful anecdote there are scores of variants, none carrying the stamp of authority. Both Mrs. Thrale and Boswell tried to draw the whole story out of Johnson. The lady recorded in her diary:

"I asked him the other day about his Combat with that Osborne, how much of the Story was true: It was true said he that I beat the fellow, & that was all; but the World so hated poor Osborne; that they have never done multiplying the blows, and increasing the weight of them for twenty Years together; The Blockhead told the story himself too originally, for I am sure I should not,—but says Osborne Johnson beat me this Morning in my own house—For what says his Friend—why for telling him that he lied forsooth."

In her published Anecdotes, printed years later, she added a further remark by Johnson: "I have beat many a fellow, but the rest had the wit to hold their tongues."

Boswell also tried to draw Johnson out about the affair.

"It has been confidently related, with many embellishments, that Johnson one day knocked Osborne down in his shop with a folio, and put his foot upon his neck. The simple truth I had from Johnson himself. 'Sir, he was impertinent to me, and I beat him. But it was not in his shop; it was in my own chamber.'"

After Johnson's death all sorts of variants appeared in print. William Cooke, in 1785, added: "Osborne alarmed the family with his cries; but Mr. Johnson, clapping his foot on his breast, told him 'he need not be in a hurry to rise; for if he did, he would have the further trouble of kicking him downstairs." Another stated that Johnson, with his feet on his victim, sonorously declaimed, "Lie there, thou son of dullness, ignorance, and obscurity." One account had Johnson's foot on Osborne's neck, another on his breast. With each retelling, new variations were created. The actual volume supposed to have been used as the weapon—a huge Greek

folio Bible-was later offered for sale by an enterprising bookseller.

To produce a satisfactory composite anecdote from these diverse versions would be next to impossible. First there is the basic problem of where the fracas took place, and why. The most popular account had it in Osborne's own house, and Mrs. Thrale quotes Johnson as confirming the location. Yet Boswell insists that Johnson categorically told him that it occurred in his own chamber. Moreover, the variations which involve Johnson's further threat to kick his opponent downstairs suggest that the fray was not located in Osborne's shop, which would likely have been on the ground floor.

Since it is impossible to reconcile the differing versions, the biographer cannot honestly put together a satisfactory composite story. He must either accept Boswell's stripped down anecdote and ignore all the rest; or he must, as I have done here, summarize all the accounts. Perhaps, where the embroidery is so amusing, the latter choice is best.

A twentieth-century biographer is constantly faced with the problem of how much to use modern psychological techniques. Should he, or should he not, use Freudian analysis on his subject? Should he isolate certain patterns and symbols which crop up in the evidence and use them as the basis of his characterization? If he does, how certain can he be that his hypothesis is correct? Is it ever safe to analyze someone who is dead, when it is so difficult to find the truth about the living? One thing is obvious: the new techniques provide opportunities for greater variation in interpretation than ever before. By using modern analytical methods excellent scholars may come to diametrically opposed answers, after studying exactly the same evidence. Let me cite only one example.

One of our best eighteenth-century scholars, using various cryptic references to "fetters" and "manacles," to "padlocks" and "using the rod," in letters and diary entries, finds an erotic, masochistic relationship between Johnson and Mrs. Thrale. And this hypothetical condition is used to help explain Johnson's deep melancholy and fear of insanity. On the other hand, another admirable scholar insists that "chains" and

references to being shackled are common figurative expressions in Johnson's writing, and normally refer only to his fear of being enslaved by indolence. Here we see that the interpretation of a single word or phrase may involve a modern biographer in major decisions of a kind never dreamed of in another age.

Again and again in writing a life there are crucial decisions where even the most rigorous logic. analysis is unavailing. The existing evider a turns out to be conflicting or insufficient, many motivations uncertain. In such cases, the biographer's total concept of his subject must be the deciding factor.

A prime example is the relationship of Johnson to his wife, "Tetty." Was the husband always completely devoted? Or was there ever any serious friction? Did they once separate, as Sir John Hawkins suggests? And did Johnson on occasions complain to his intimate friends about the wretchedness of his domestic situation? Was his later sentimental attitude toward his departed wife "a lesson that he had learned by rote?"

Boswell, who met Johnson eleven years after the death of Tetty, was horrified by this suggestion. Angrily he lashed out at Hawkins for having made it, and a century and a half of Boswellians have piously echoed the horror. Hawkins's uncharitable interpretation, it has been assumed, was merely an example of his unsympathetic attitude toward his old friend, and should be scornfully disregarded.

As a result, the picture of the devoted, though ill-matched couple has become an essential part of the Johnsonian legend. Nothing, perhaps, can ever shake it. Moreover, it is based on genuine documentary evidence in Johnson's prayers and meditations. As the years stretched on, he did look back on his married life with nostalgia and lachrymose sentiment. "Dear Tetty," though many years dead, was constantly in his mind.

But a modern student might well wonder whether this was merely a later rationalization. The emotional entries could have been a psychological release for old complexes, compensation for guilt feelings, rather than proof of Johnson's actual attitude toward Tetty while she was alive. How, then, can we decide which is true?

In this instance there is very little contem-

porary evidence. One surviving letter from Johnson to his wife, not quite five years after their marriage, is affectionate but in places equivocal, and does certainly suggest the possibility of a temporary estrangement. Yet except for this there is nothing specific to rely on for these years, no pertinent diary entries or revealing notes.

The testimony of those who knew the pair during the 1740's-from David Garrick; Dr. Taylor of Ashbourne, one of Johnson's old schoolmates: Mrs. Desmoulins, the daughter of his godfather; and Dr. Levet, the strange crude physician who lived for so long in his houseall this comes down to us only through much later recollections, some rather dubious. No early documents survive to support the colorful stories of Tetty's excessive drinking and taking of opium. To be sure, all the authorities agree about the drinking and hypochondria. But it is possible that these unflattering portraits were casual exaggerations, brought out merely to offset Johnson's excessive praise. Hawkins, who had probably met Johnson early in the 1740's, admitted that he never met Tetty and was merely passing on hearsay. Much of what he wrote may be only inference.

Each biographer of Johnson thus is faced with a crucial decision, whether to accept the view of Boswell, who never knew Tetty, or the unfavorable recollections of the others. Does the truth lie completely on one side, or somewhere in between? Somehow the conflicting points of view must be fitted into the comprehensive picture of Johnson the man. Inevitably one biographer will cling to the conventional version, and put his faith in Boswell and in Johnson's own later memories. Another will rely on the reports of those others, and will discount Johnson's subsequent emotional outpourings. The choice depends entirely on the pattern which has been set up in the biographer's own mind. As a creator of character, he interprets the evidence to fit his idea of what Johnson was really like.

For years I myself wrestled with this problem. Gradually—it is hard to tell just why—I came to accept Hawkins and to reject Boswell. As I studied the documents I was irresistibly drawn in that direction. Though Hawkins's remarks in this instance may have sounded uncharitable, they impressed me as representing a more probable condition.

According to my reading of Johnson's character, he would inevitably have romanticized his departed wife, no matter how difficult she had been during her last days. Indeed, the more troubled he had been, the more convinced he would later have become of his own responsibility for her break-up. And with this increased feeling of guilt the tearful remembrances would have been unavoidable. If at times he had been unhappy in his marriage and had complained to others, his over-developed conscience would have forced personal recriminations after his wife was gone. Thus his later sentimental entries in his diary cannot be taken as evidence of earlier relationship, but merely of his subsequent mental condition.

This is my interpretation; it cannot be proved. While it is based on a long study of the facts, it is nevertheless subjective, and has no standing as history. For me this interpretation fits into the pattern of Johnson's life as it has been built up in my mind. Moreover, it is intimately connected with my other theories concerning Johnson's relationship with his mother and his only brother. All the complex forces which produced his well known eccentric temperament were involved. The explanation represents a fusion of the evidence in the light of my own total concept of Johnson's character.

Naturally I hope that my re-creation is neither willful nor opinionated. Yet I know that others may disagree violently. And the probability is that fifty years from now my conclusions may all be discarded. Even if there are no more Malahide Castle discoveries, no more croquet boxes or ebony cabinets, another biographer, writing in the next age, with a new sensibility and new interests, will fashion from the same material a very different portrait.

Of one thing I am certain: to be successful any biographer must be creative. Within the limits of ascertainable facts—and these, of course, must never be violated—he has an almost limitless opportunity for choice. Like a classical poet or composer, who gladly works within certain self-imposed structural confines, he always has the opportunity to shape his material into a work of art.

BIRD IN SPACE by Brancusi

collection peggy guggenheim

SCULPTORS and SCABBLERS, SCIENTISTS and SATELLITES

Modern science and modern art are more similar than you think, declares this research chemist, who knows his Brancusi as well as his Boyle.

by RALPH S. HALFORD

Imagine two men working side by side, sharing tools, each shaping his own piece of stone from the same quarry. To shape stone is to scabble. Both men are scabbling, yet one is a sculptor and the other a scabbler. To know which is which, we must look at the finished works. The sculptor has labored to express some significant idea, some concept abstracted out of his experience. The scabbler has worked

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to produce something useful.

Science has its sculptors and its scabblers too, of course. Imagine again two men, now working side by side in a scientific laboratory, sharing the same tools, the same instruments, apparently doing the same things. One of these men labors to shape some new conceptual scheme, a symbol of reality abstracted from his experience, a fabric of ideas. His companion labors to fashion something useful: a piece of cellophane for a food wrapper, an improved fuel for automobiles, some one of the many conveniences that we recognize as the fruits of modern science.

The conceptual schemes which are the artistic creations of science are formulated at progressively higher and higher levels of abstraction. A scientist begins by examining reality, constructs some conceptual plane above this, something like an easily recognizable portrait, then abstracts common essences from this to create a higher level of abstraction, by now broadening in scope, and so on—up and up, out and out, toward an ever-greater universality and simplicity.

This process of progressive abstractions has its parallel in modern sculpture. In a small, quiet gallery on the third floor of the Museum of Modern Art in New York City, there are some six or seven works by the modern sculptor Brancusi. The process of abstraction from abstraction from abstraction from reality which occurs in science is beautifully illustrated within this one small collection of sculpture. Suppose we start with the idea of a man and accept Rodin's statue of The Thinker as an elementary sort of abstraction. In the collection of Brancusi's work, there is a piece which is called the Portrait of Mlle. Pogany, a piece which conveys to me immediately upon seeing it the impression of an uncommonly beautiful woman. But, if one examines this piece of sculpture carefully, it is almost a pure form. Details such as bone structure and musculature have been omitted. The nose is prominently displayed as a clue, and one sees a little coil to suggest hair at the back of the head, but the other features are all but absent. The eyes are enlarged, barely perceptible indentations in the otherwise smooth surface, and the mouth too is highly simplified. There is something to hint at fingers on a hand near the suggestion of an ear. Dimples, wrinkles, bone structure—all of these usual details have been omitted, and yet one sees unmistakably a very beautiful woman.

In this same gallery there is a piece from which detailed clues are omitted entirely: Brancusi's spectacular Bird in Space. This work, the purest of forms, starts at eye level on a horizontal plane and develops upward, first to greater width with a gentle curve, then slowly back into a narrow neck; grows briefly again to greater breadth, and then terminates abruptly at the top in another horizontal plane. This smooth, exquisite form, with its axis inclined just a bit forward, tilted off the vertical, thrusts powerfully but gracefully upward, poised as though for flight. There is not one iota of detail-eyes, beak, feet, feathers, or the like-yet the whole work bespeaks the very essence of Birdness, the exhilaration of flight. Nearby is Brancusi's Fish. This is a simple, polished piece of stone, its profile suggestive of a fish's body but having no head, no tail, no fins, no gills, no scales, no detail of any kind to aid identification. Seen head-on. the piece, like the airfoil of an airplane, has a thin, clean shape. It is cut from veined marble which ripples with light and shadow, as does the bottom of a shallow pool on a sunny day when the surface of the water is disturbed. There is no doubt about it, we view the essence of the swiftly swimming fish.

Another of Brancusi's creations, his Socrates, was formed at a still higher level of abstraction. This carving in wood stands on the floor, stemming from a base which suggests a tiny world barely capable of supporting the mass above it. Emerging from this base is a spindly column, a repetition of beadlike forms supporting at its top, but off to one side, like a head erected above the human spinal column, an exaggerated cranial shape. The huge head has been hollowed through from side to side so as to leave only a thin shell, with a notch on each side and a jawlike appendage below. The meaning is not immediately obvious. But, upon some reflection, a message emerges: Socrates towered above his world, he had a great mind, a clear mind, an open mind (so open in the work that one can see through it), and he was, as suggested by details which I have not described, always both listening and speaking in his Dialogues. The surface of the carving is rough, marred by many tool marks: the piece has a homely character.

Finally, at the end of our sample of Brancusi's progression of abstractions, we come upon his Endless Column. The work is simply a repetition of the same form in a vertical development. The aim here is apparently to symbolize some of the mysteries of life, among them the cycle of generations repeating itself endlessly, without evident beginning or predictable ending, yet everywhere beginning and everywhere ending. Here indeed is a complicated idea to convey in a piece of carved wood. I feel a good deal of sympathy with the artist's evident dissatisfaction-for Brancusi attempted this piece again and again throughout his life. I am especially sympathetic because I know of another medium, that of mathematics, in which this idea can be conveyed succinctly and elegantly to include simultaneously all repetitive themes. To the man who has mastered mathematics, the message contained in a few symbolical characters called by mathematicians a Fourier series is clearly evident. With practice he can even visualize this idea as though it were a tangible object.

I hope by this time that the trend of my own thoughts has become clear. For me the sculptor Brancusi embodies the questing spirit of the modern scientist; in my friends who are modern scientists I see just as clearly the spirit of the artist. I find very little reason to distinguish qualitatively between these forms of human endeavor.

Today, science exerts an enormous influence in all human affairs. Citizens, whose lives are being affected by science, must render, usually in ignorance about science, judgments of highest import for their own health, welfare, and security. Special citizens-Senators and Presidents-must make momentous decisions involving matters which they often do not comprehend. Science, in spite of its pervasive importance, is an obscure activity of but a handful of men. The ignorance concerning science which prevails within our electorate and our government, affecting even the majority of our better-educated citizens, is a vexing problem both to those who share it and to those who do not. Almost invariably scientists seem to fail when they attempt to communicate to their fellow men any substantial portion of the content of science, that is, to convey anything which calls for expression in scientific terms. One key to an understanding of the nature of this problem can be found again, I believe, in the qualitative parallel between science and art.

Art is a form of communication that depends for its success upon both the artist's and the viewer's sharing some elements of experience in common. Experience is the result of stimuli which affect our senses. But science has discovered that there are many stimuli to which our senses do not respond. The scientist creates instruments, supersensory aids, that detect these unsensed stimuli and respond by converting them into other stimuli to which our senses do respond. The scientist so equipped explores in a realm of experience that is uncommon and unfamiliar to anyone without such devices. Scientific knowledge today is derived from a world of experience that is largely unavailable to the ordinary or unaided senses. And so the process of communication becomes difficult or breaks down altogether because the artist and the viewer, the scientist and the non-scientist, no longer share a sufficient fund of pertinent experience.

Let me illustrate this difficulty with a parable. Imagine a little Micronesian island, a flat coral atoll surrounding a quiet lagoon, supporting a few palm trees, some birds, and a small tribe of people. The island has little vegetation, and its topography scarcely rises above the level of the surrounding sea. One of the natives has developed a high order of taste and skill at some kind of primitive art, at painting, we shall say, on a crude cloth prepared from bark or coconut fiber. Suppose that a flier, forced to land temporarily on this lagoon, on a whim picks up the local artist and packs him into his plane. Suppose he transports the native, together with his paraphernalia, to the Alps and there confronts him with the Matterhorn. The artist is thrilled and inspired by this splendid, unheard-of protuberance. He wants to share his new perceptions with his fellow tribesmen, and the aviator agrees to carry his artistic expression of it back to them.

The tribesmen have never seen snow; they have never seen massive rock, not to mention

a mountain of great elevation. Our artist is faced with a bit of a problem. He solves it by setting off the Matterhorn with a lake resembling the quiet water in the familiar lagoon, a blue sky with clouds in it, trees that are somewhat distorted to resemble the palms at home, a few birds, some people, and a fire. He relates this extraordinary experience of his to enough familiar, common experiences to convey his message to his inexperienced fellows.

But now suppose that this incident had occurred a few decades hence. Suppose our artist had been taken to the moon. The moon has no atmosphere to sustain a fire, the sky is always cloudless and jet black, even in midday; there is no water, there are no people, there are no lakes, no birds and no trees, but there is still a mountain on the moon. Deprived now of all the familiar elements of experience, how does the artist go about conveying this moonscape to his people? The problem, to say the least, is formidable.

In this parable we have the essence of the scientist's problem in communicating the content of science to the intelligent, educated citizen who lacks experience of a necessary kind.

Scientists are accused of arrogance toward those who do not share their strange order of experience. Doubtless they are arrogant, but their arrogance has its parallel again in art. Van Gogh accepted no obligation to paint for the color-blind. Brancusi, when he expressed a wish that his inspiring Bird in Space were fifty feet tall and situated in the middle of a public park, denied any obligation to sculpture for the few blind. Beethoven, though deaf himself, did not address his musical compositions to the similarly afflicted. James Joyce recognized no obligation to write for those who are illiterate or do not use the English language. To accept such an obligation means not merely to limit but to give up, to abandon, an art.

An inability to appreciate science afflicts the majority of our citizens today, but I will venture the opinion that a lack of incentive or a lack of opportunity to acquire a necessary kind of experience is the prime cause rather than an innate lack of curiosity or capacity. Irremediable defects such as color blindness and tone deafness afflict only small minorities of our populace, including scientists in similiar proportions. Scientists may equip themselves with strange, supersensory instruments, may encounter strange experiences, but scientists are not supermen. Ignorance of science is like illiteracy, which was also once widespread. Illiteracy can be remedied and its incidence is insignificant today.

To me, science is the most liberated of modern art forms. It has freed itself of limitations inherent in our senses as sources of experience, and by adopting all conventional media while also inventing new ones, it has freed itself of many of the limitations of materials.

It is an old idea, at least as old as the Trojan Horse, that works of art, imitations of them, or references to them can be incorporated into weapons. So, while it saddens me, it does not surprise me that Einstein's poetic creation of the equivalence of mass and energy is transformed into a bomb. There is nothing unique about science in this respect. The scabbler must cater to the public's taste; the sculptor attempts to improve it by cultivating his own.

Satellite launching is scabbling-skillful to be sure—but it is not sculpturing. True artistic creations in science are being imitated and used. but the originals all are quite old. Archimedes built a little engine on the principle of jet propulsion, and the Chinese knew about gunpowder as a propellant centuries ago. The general principles of ballistics, of trajectory in flight, are scientific classics of a former day. If satellite launching is leading us to a new work of art in science, that work is still to come. It will arise out of the extensions of experience being furnished us by the device we call the satellite, our Explorer and Vanguard or their traveling companion Sputnik, which go where we can't go and sense what we can't sense. Perhaps this new experience will yield some item of unusual significance, a new Matterhorn of knowledge.

THE HYSTERIA OVER GETTING INTO COLLEGE

How college entrance has come to resemble legalized gambling and organized banditry-together with a few striking suggestions for reform.

by FRANK H. BOWLES

Case 1: The admissions officer of a New England men's college, worried about filling his freshman class of 300, reopens his waiting list and sends out another seventyfive letters of admission in addition to the 500 he has already sent. Ten days later, digging out from under the pile of replies, he finds he has sixty more freshmen than the college can accommodate. The college honors its commitments and improvises accommodations and schedules. Five months later, the only man on the campus who still speaks to the admissions officer is the college treasurer, who, every time they meet, beams, shakes him by the hand, and inquires hopefully about the size of the next freshman class.

Case 2: A metropolitan area high school, located in an upper middle-class suburb, announces that 310 of its 322 graduates are entering college, that they have, among them, applied to a total of 290 colleges, received a total of 623 tenders of admission, and have scholarship offers of a total value of \$130,000. The principal estimates privately that only six of the graduates ever needed financial assistance to go to college.

Case 3: The principal of a New York City high school, in a middle-income neighborhood, asks the staff of the College Entrance Examination Board to join in a series of presentations to his faculty, students, and parents, planned to prevent the rush of his students into fly-by-night coaching schools which purport to give special preparation for the College Board Examinations.

He estimates that the families of children in his school spend about \$30,000 a year on these coaching schools.

These three anecdotes have two elements in common: first, all three are concerned with college admission; second, none of them makes any sense. There is no reason why a college admissions officer should miscalculate the size of his freshman class by 20 per cent; no reason why an excellent high school should even permit its graduates to accumulate twice as many letters of admission as they require, let alone encourage them to do so; no reason why students should flock into expensive coaching courses when they are told by informed people that these are a waste of money.

Yet these anecdotes are neither unusual nor fictitious. Such events have happened, they have all happened within the last two years, and others like them will happen this year. They are symptoms of an hysteria that is afflicting colleges, students, secondary schools, parents, in fact every one and every activity bearing on college admission.

This hysteria is both dangerous and expensive. Students buy extra instruction to prepare for tests, make extra applications to colleges in which they may have little or no interest, and take the same test two or three times in the blind hope of hitting an extra-high score which will improve their chances. Secondary schools, swamped by demands for extra service to college applicants, increase their guidance staffs, add special coaching programs, even engage in something like press-agentry to sell their candidates to colleges. Colleges swamped with applicants increase their admissions staffs, search for better ways to test and select, for ways to separate the genuine from the casual applicants, for assurance

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as to how many students they will actually have when school opens. Admissions costs go up, application fees go up, and the actual efficiency of the admissions process goes down as the useless duplications increase. The problem resembles monetary inflation. And like inflation it threatens to erode the economy from which it arises.

But, what causes it?

1. There has been a large increase in the number of college applicants. Figures on this point are unreliable, and cannot be quoted with assurance, but it is certain that the percentage of the youth of college age who actually go to college has at least doubled since 1940. Also there has been an increase in the number of youth of college age, so that the larger percentage applies against a larger group.

This increase in the number of college-going students has been due in large part to a popular acknowledgment of some of the values of higher education, such as job placement, social status, and income. These values have always been present, but they have never before appealed so irresistably to a rising generation in search of early independence, early marriage, and a promise of security. In part too, the increase has been due to rising incomes which have put many new families in the class that can afford college. A skilled, or even a semi-skilled workman with a good weekly salary check, annual increases in take-home pay, and a guarantee through unemployment benefits and other security programs of at least some income every week in the year, can think about college for his children with a firmer expectation than his own parents could. The fact that national domestic policy is supporting, not to say urging, the expansion of higher education is also important. That the support so far has been in the form of words, not deeds, is perhaps beside the point.

2. Different kinds of colleges have responded in different ways to the new rush of applicants.

The high-cost prestige colleges, have, despite their disclaimers, enjoyed real prosperity since the war, and have chosen to channel this prosperity into modest increases in enrollment, some improvements in classroom facilities, considerable improvement in their faculties' salaries and working conditions, large investments in the apparatus of extracurricular life—dormitories, theaters, recreation facilities, etc.—and tremendous increases in their scholarship programs.

The medium-priced "good" colleges, some

private, some public, undergoing periods of both prosperity and anxiety, have enlarged their facilities considerably, added new programs, and increased their student bodies to a point far beyond their prewar capacities. They have maintained but not improved the quality of their faculties.

Low-cost mass education, provided by large institutions, both public and private, and usually urban, has grown tremendously. Its facilities have been enlarged and improved, but, with some exceptions, there has been no commensurate improvement in instruction, even though working conditions have improved. Costs have risen so that these are now medium-cost rather than low-cost institutions.

Technical and semi-professional education, only occasionally defined as part of higher education before the war, has since been widely accepted under this definition, and substantial facilities for this type of education have been built up. Many of these are new junior colleges or community colleges; others are new divisions of established institutions.

A number of private colleges, offering low-cost education, short of support and facilities for many years but surviving comfortably before the war, must now be classified as underprivileged. Unable to improve facilities and faculty working conditions, they are in greater difficulty now than they were before the war. They are caught in a downward spiral of prestige and quality and each year is the beginning of another struggle to check the slow drain on already strained resources.

The college vacancy situation can therefore be described this way: very little increase in space available in prestige institutions, ample space in medium-cost "good" institutions, a good deal of newly created space in technical and semiprofessional programs, and excess space in the hard-pressed low-cost institutions.

3. Wherever the number of available applicants has not coincided with the available space, confusion has resulted. At the upper end of the academic distribution, there are the colleges that are well and widely known for the quality of their students, for their academic reputation, for the ease with which their graduates enter the best professional schools, for the good jobs offered to their graduates, and for the celebrity of their alumni.

These institutions draw more—far more—ap-

plicants than they can accommodate. The largest part of the applicant group comes from the upper class and the upper middle class. From these two strata alone come enough applicants to fill these colleges—more, in fact, than ever before, largely schooled in excellent secondary schools (the large suburban high schools and the private schools).

But there are other groups as well. There is the group which has for twenty years been the object of a talent hunt, with scholarships as bait, conducted annually by these same prestige colleges. This is the group of superior and gifted students, from all shapes and sizes of secondary schools, who may be drawn by scholarships to colleges they could not otherwise afford.

Finally, the prestige colleges still draw a few students from a stratum which once sent them many: the well-educated families with incomes under \$10,000 a year—school teachers, ministers, bank officers. No longer able to count on sending their children to the better colleges, such people can nevertheless do so occasionally, through family combinations or heroic financial strategies.

Because these prestige institutions draw more applicants than they can accommodate, there is a spill-over of their candidates into other colleges. It is this spill-over which produces confusion, not only for the candidates themselves but also for the schools from which they come, and other colleges to which they may have applied.

More and more young men and women take elaborate—if hysterical—precautions against being caught in this spill-over: they begin the application process early, each student makes several applications "to be safe," and all applications are pursued with maximum vigor lest the second or third chance to enter college be lost while the applicant concentrates on the first. There may be several series of examinations, there are reams of correspondence, countless interviews, uncertainty is added to uncertainty, there arises the uneasy sense that one more application should be made in case something goes wrong; sometimes, despite all plans, the end is complete disappointment.

Secondary schools must support their candidates in whatever efforts they make to gain admission. School officials must become expert in college requirements and the behavior of admissions officers, must build their own staff to advise, to guide, and to guard. It is this staff's business

to get students into college, and they must not fail in this business. If it is necessary for every student to make five applications in order to be "safe," then the applications will be made even if it means that there will be three times as many admissions granted as can possibly be fulfilled. If it is necessary to condone "coaching" courses in order to pacify parents, coaching will be condoned, even encouraged.

Colleges too are caught up in the hysteria. When an admissions officer knows (as all of them do) that all of his candidates have made two or more applications, he loses confidence in his ability to predict the size of his class. Not knowing how many of his applicants prefer his college, he does not know how many of his tenders of admission will be refused. Not knowing, he is on both horns of a dilemma. If he under-admits, the college will be in financial difficulty for lack of tuition income. If he over-admits, it will be in physical difficulty for lack of space. If he plays safe and admits from a waiting list, his best waiting-list students will not be there when he gets around to admitting them; they will already have accepted another institution.

The colleges that draw fewer applicants than they need are in a particularly difficult situation. They are not necessarily poor colleges, but they are less well known than their older brothers and sisters. Some have enough applicants to fill their classes but want wider choice and better students; others simply cannot fill their classes. They draw some direct applicants, but not enough. They must depend on those spilled over from the prestige colleges. Since the size and quality of their class depends on their ability to enroll students whose first choices are higher on the academic scale, they naturally exert pressures on their candidates. Simplified applications, waivers of test requirements, early tenders of admission, early dates for "final" acceptance of admission, requirements of large deposits, energetic follow-ups, all these are stock in trade for the admissions officers of the underprivileged colleges. All add to the already sufficient confusion that confronts any candidate who is taking reasonable precautions in his applications for admission to college; for no candidate, however certain of himself, can be entirely comfortable in refusing a tender of admission from his thirdchoice college, not when he had just been informed, impersonally and sometimes coldly, by his first-choice college that no decisions will be made for at least another month.

Scholarships, of course, add still another dimension to the problem. They are handled on a time schedule which does not coincide with the admissions schedule.

As described—and my description is neither exaggerated nor inaccurate—this is a system in which supply and demand are out of balance. Hysteria is the product of individual attempts to find security within this unbalanced system; security cannot be found until the balance between supply and demand is restored.

The imbalance may be traced back to the two main controls of college entrance: the high school curriculum and college entrance requirements. At one time these controls were, in a sense, synchronized. College entrance requirements established a curricular pattern for the secondary schools, not a universal pattern to be met by all students, but a pattern to be met by those interested in going to college. These controls regulated the flow of applicants to colleges, and the admissions operation went smoothly, easily, and with few surprises or uncertainties for either candidates or colleges.

However, during the past thirty years these controls have slipped out of adjustment. College entrance requirements have taken on an elastic quality to permit the admission of out-of-pattern students with extraordinary ability, while the high school curriculum has broadened.

But the price of this new—and certainly beneficial—freedom has been inflation: the demand in the form of college applicants has increased, without there being any compensating device for regulating the flow of students into the colleges. Now the regulation must be undertaken, and the process, which will involve the reassertion of firm college entrance requirements, may well prove a painful one.

The first signs of this assertion are to be found in the fact that groups outside of the secondary schools are beginning to take an interest in the content of secondary school subjects.

Mathematics, physics and chemistry, all subjects in which the secondary curriculum has been allowed to lag behind the growth of knowledge, are being overhauled and brought up to date. The study of foreign languages is taking a new lease on life, and in some school systems is entering the curriculum during the elementary

school years, as in the European schools. There are even rumblings which presage a complete overhauling of the secondary curriculum in English, in an attempt to restore the lost art of English composition.

Significantly, within the past four years a movement to recognize advanced work in secondary schools by the granting of college credit has gained enough favor in colleges to stimulate several hundred schools to introduce the necessary advanced courses. Some colleges have recognized this movement for what it is, a genuine attempt on the part of secondary schools to restore articulation between school and college. Where it has been recognized, the program has been generously treated and has flourished, to the benefit of both schools and colleges. But too many colleges are unwilling or unable to accept the idea, so the movement spreads slowly.

The raising of standards is a slow process. It will require from five to ten years for colleges to define new standards, and as many more years before secondary schools readjust. In the meantime, the hysteria continues.

Efforts are made to control the problem administratively. Proposals for common forms, common procedures, and common acceptance dates are constantly advanced. Some are adopted, such as the Candidate's Reply Date—the date in May of each year by which the candidate is expected to make up his mind and communicate his decision to the colleges which have admitted him—but even a straightforward agreement such as this begins to wear around the edges as new ways are devised to put extra pressure onto the candidates.

Clearing houses, application centers, arrangements for mutual referral of unplaced candidates and unfilled colleges, guidance programs in which schools and colleges join, all are palliatives which would at least reduce some of the symptoms of hysteria, but so far neither schools nor colleges in any number have been willing to explore them deeply.

To the observer, watching the movements and figures within the intricate dance of college admissions, the outcome appears uncertain. There are measures which can be taken, but they will require a degree of cooperative action, and probably more self-denial on the part of both schools and colleges. If none are taken, no changes made, the situation will, in time, adjust itself. But it will get worse before it gets better.

I've Been Reading

On Writing About Politics at a Safe Distance

by RICHARD H. ROVERE

I sit in the room in which I work (I resist the word "study"; I work here) and look at the shelves of books I need, or think I need, to have close at hand. In addition to formidable collections of the World Almanac, the Congressional Directory, Facts on File, dictionaries, and "companions" to this and that, I have just about all the literature of the period (1937-1958) which my life as a reporter has spanned.

I have almost everything published in book form about the Roosevelt, Truman, and Eisenhower administrations. I have memoirs galore (Hugh Johnson to Richard L. Neuberger), collections of speeches and other vital documents, journalistic books (I Write from Washington), academic books (five volumes of Presidential

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Nominating Politics in 1952), hortatory and improving books (An Essay for Our Times, Strategy for Liberals, A Program for Conservatives). books of theory, books of practice. I may well be the only private collector to own the complete works of Harold Stassen, Merriman Smith, Sumner Welles, Raymond Moley, and James Burnham, all in first editions. I have Karl Pauly's life of Senator Bricker; Kenneth Twombley's The Life and Times of a Happy Liberal; James Keogh's This is Nixon; My Name is Tom Connally; the memoirs of Vera Bloom, daughter of the late Rep. Sol Bloom (D., N.Y.); every book by or about Dwight D. Eisenhower, including one of my own; every book on the Hiss case; every book by or about General MacArthur, including one that is half my own; a large number of books telling how worthwhile civil liberties are; and ever so many books about American foreign policy, going back to Charles A. Beard's The Devil Theory of War and marching down through the years-Munich, Pearl Harbor, Hiroshima, the Cold War, Korea, Geneva-to Ernest LeFever's Ethics and United States Foreign Policy, published a few weeks ago.

There it all is, the history of the United States in the last twenty-five years—the busiest and, I should judge, the most interesting of all American periods. (Witness: Turbulent Era, A Chronicle of Jeopardy, Global Mission, The Big Change, A Challenge to Greatness, The American Century, A Time for Greatness, Fantastic Interim, The Crucial Decade, The Twenty-year Revolution, Days to Remember, The Struggle for the World.)

My eyes pass over these shelves many times a day; sometimes they fix themselves there, and I am assailed by the thought that there are not in these hundreds of books, the books "I've been reading" half my life, a dozen that I could honestly call interesting—in the sense of possessing in and by themselves qualities that hold my interest. There are important books here, thoughtful books, courageous books. Many of them have required prodigious labors of their authors. But there are not more than a dozen I would read if I were not driven to it by a sense of duty.

As a matter of fact, not even conscience goads me to "read" them. Most of them I simply "use" —that is to say, I look here and there in them for the things that satisfy some need of the moment, such as a date, a name, a text, a record of a particular event, a line of argument. I can think of no task more appalling than sitting down to read, from first page to last, The United States in a Changing World, The Blessings of Liberty, The Federal Bureau of Investigation, What Eisenhower Thinks, Truth is Our Weapon, Big Government, or even the collected speeches of Adlai Stevenson. Books like these fit none of the Baconian categories; they are not to be tasted, swallowed, or digested, but rather to be taken, in small doses, as specifics.

Offhand, I can't make the interesting ones add up to a dozen. I think of Sherwood's Roosevelt and Hopkins and of the diaries of Harold Ickes; these seem to me to offer some of the kind of fascination one feels with Pepys and Boswell. Walter Lippmann's The Good Society and Murray Kempton's Part of Our Time are books I might honestly urge on a friend who was looking for something to read. Dwight Macdonald's Memoirs of a Revolutionist has parts that could be read without the spur of professional responsibility. There are not many more.

Is all this as lamentable as I seem to be making it out to be?—or is it merely what one ought to expect? After all, how many quarter-centuries in any nation's history have left us with even a half-dozen good contemporary records or commentaries? Not many, but this is, I believe, beside the point. The dozen or so books one might choose from this period as distinguished in their own right will lose most of their interest in the next quarter-century. There will be three or four survivors, if that many.

It is, I think, a demonstrable fact that in this country our chronicles of our own times, our contemporary histories and commentaries and the memoirs and biographies of our public figures are duller and dustier by far than they need to be and compare most unfavorably with similar works in other Western nations. It is not merely a matter of the anti-intellectualism of our politics—not merely that we have no Churchills or Leon Blums. The truth is that very few reflective, literary intelligences deal with public affairs in this country, even at a distance. (No, I do not mean "reflective, literary intelligences"—I mean "interesting minds.")

In France, Raymond Aron writes books of history and political criticism like The Century of Total War and The Opium of the Intellectuals that are exciting and imaginative discourses. Albert Camus is an informed political journalist as well as a great novelist. Nothing as thoughtful or as absorbing came out of our participation in the Korean War as Jean-Jacques Servan-Schreiber's Lieutenant in Algeria. In contemporary history, journalism, and political comment, the British have innumerable talents who have no counterparts in this country—Isaiah Berlin, H. R. Trevor-Roper, Harold Nicholson, R. H. S. Crossman, Anthony Crosland, Peter Fleming. Other names come to mind: Koestler, Orwell, Stephen Spender.

It is not, of course, lack of concern about public affairs that makes our writing on the subject so boring. In this country even more, I should think, than in England and France, the people who might write interestingly about the history of their own times have felt themselves deeply involved in public and political matters. But their involvement has been active (forming committees, signing manifestoes, and such) and partisan. Unlike the British and the French. who are often a good deal less active and partisan, very few of them have applied their analytical equipment directly to the material at hand. We have had some good people writing on the sociological fringes of politics (David Riesman, Daniel Bell, Irving Howe) but few who have really settled down to the subject. We have had some professional public servants (mainly diplomats - George Kennan, Dean Acheson, Louis Halle) who have shown large gifts as publicists and historians, but their work has been slight in volume and narrow in focus.

There are, it seems to me, two qualities of the American mind that go a long way towards accounting for all this. One is its terrible weakness for conspiracy theories of history; the other is its suffocating professionalism. I think the two are related.

One may see some of the ravages of the conspiracy theory in a man superbly equipped to write interestingly, a man who has never for a moment appeared to succumb to narrow professionalism. I am thinking of Edmund Wilson, whose recent *The American Earthquake* surely belongs among the honorable exceptions to my general rule of dullness. Wilson is the finest journalist writing in English, and those of us who

work any of the veins he does can only despair when we find ourselves absorbed in 1958 by some casual article he did for Vanity Fair or the New Republic in 1924. (The other day, in search of an elusive fact I seemed to remember having dealt with before, I went back to an article of mine published only two years ago; I got it from my file, began reading it to see if it had what I wanted, and found that I could no longer make head or tail of it-I lost the thread right at the start and couldn't for the life of me figure out what I had been talking about.) Wilson has a golden touch: things become interesting merely because they have attracted his interest and set his mind and senses to work. Yet when Wilson deals with political ideas and with the broader sweeps of history, he becomes-not uninteresting, never that-but exasperating, almost silly, and a sure victim of conspiracy theories: Wilson and Roosevelt "got us" into wars. John L. Lewis "put over" Section 7a of the National Recovery Act and, by extension, most of what was liberal and radical in the New Deal. We are in the Cold War because the United States is "challenging the Soviet Russians for domination of large sections of the world."

In the thirties, of course, Wilson was a Marxist of sorts. Now, in the forties and fifties, one finds him looking at society and the world as if he were not himself a part of either-looking ever so sharply but nevertheless with the eyes and mind of a man to whom it has not occurred that he may see his own image somewhere in the institutions of his own community (as Camus does so marvelously and historically in The Fall) or that political life is, after all, only an aspect of the human comedy he understands so well in his role as a novelist and a critic. His guide to the forties, it turns out, has been the Charles A. Beard of the forties, the crabbed old scholar who was almost suicidally bent on destroying his earlier self by repudiating his earlier insights and whose final works were shot through with conspiracy dogmas.

I cite Wilson's acceptance of these dogmas merely to show their pervasiveness—not as an important ground for dissatisfaction with *The American Earthquake*. Only a small portion of the book is really affected by them and that not greatly. The same view, though, affects other writers more grievously and either keeps them

from dealing with contemporary history in any serious way or gives what they do a spoiling tendentiousness. So much of our view of our public affairs is a matter of sorting out the demons, their victims, and their antagonists, and this, I think, encourages and perpetuates the quality of remoteness that one finds in the work of some of those who have the finest gifts for dealing with the material.

Reading Wilson, one discovers not only that Beard has been his guide but that a very few books form the whole basis for his writing on recent events. (He rests a series of sweeping assertions about the Roosevelt administration solely-so far as he lets on-on Eleanor Roosevelt's memoirs.) In his concluding chapter, in which he says all that he has to say on the events of the last twenty years, he tells us that he visited Washington in 1953 and that this was the first time he had been there since before the war. In Dwight Macdonald's Memoirs of a Revolutionist, which has many of the good qualities that Wilson's book has, there is no evidence whatever that Macdonald, except when he deals with radical politics, has regarded the history of his time as contemporary history—that is to say, as something he might see and hear as well as keep abreast of through The New York Times. When Wilson and Macdonald write of the public affairs of their own time, they draw on resources not much broader or more immediate than those that would be available to them if they chose to be historians of the early nineteenth century. (I sometimes wonder if things might be different in this country if New York rather than Washington were the capital, so that New York intellectuals, like those of London and Paris, simply could not avoid association with politicians and public servants. I think the idea of a federal city, an isolated capital, has had quite a bit to do with the prevalence of conspiracy theories.)

We Americans tend to be possessed by our disciplines and to think of them largely as acquisition of quantities of fact. Political journalism and political science and historiography are all fields of research, and in general the work we honor is the work that is worked up, or researched. The work that is casual in spirit, like Wilson's and Macdonald's, is unlikely to be honored or even read by those for whom it would

have the greatest immediacy. If there were an American Camus, he would have little standing except as a novelist, for he would be looked upon as an interloper. I doubt very much if Wilson will be read as an historian by other historians. as a journalist by other journalists, or even as a liberal by other liberals. His status is that of a critic, and even that, I gather, is a matter of some dispute among professional critics, who distrust his flagrant "amateurism." Unhappily, the thing works both ways, for Wilson and those who approach him in stature persist in the needless vices of amateurism, looking upon the history of their times as something of which they are not a part because their major interests lie elsewhere.

I am trying—awkwardly, I fear—to suggest the existence of a vicious circle, and if I fail, it is not for lack of feeling myself caught up in it. Contemporary history happens to be my own discipline. To keep abreast of it, I must spend my days immersed in the kind of third-rate stuff that lines my shelves and the much greater quantity of it that is found in the mountains of

periodical literature. When I read outside it, I read more and more for sheer escape and less and less as an interested member of my own generation. Two of the last three modern novels I have read were by friends and read because of friendship. I spend a good deal of time reading Montaigne, not because he has much to say to me (if he does, I miss it: I could not for the life of me write a summary of Montaigne's thought, as I could, say, of Dr. Johnson's), but because the crispness and materiality of his style take me so far from where I live day in and day out. Recently a friend who spends much of his time touting the virtues of the better young novelists, few of whom I have read, told me that he was deep in War and Peace because Tolstoy took him as far as he could get from the novelists he is trying to persuade others to read. I read Santayana in much the same spirit-not because I find him relevant but because I find him so gorgeously irrelevant. And I escape into the movies and television—but this is not the place to talk about that.

Right now, I must get back to Facts on File.

On keeping the lines clear

extend this generalization to cover not just higher education but all education from the vocational high school to the graduate school. There may be excellence or shoddiness in every line of human endeavor. We must learn to honor excellence (indeed to demand it) in every socially accepted human activity, however humble the activity, and to scorn shoddiness however exalted the activity. There may be excellent plumbers and incompetent philosophers. An excellent plumber is infinitely more admirable than an incompetent philosopher. The society which scorns excellence in plumbing because plumbing is a humble activity and tolerates shoddiness in philosophy because it is an exalted activity will have neither good plumbing nor good philosophy. Neither its pipes nor its theories will hold water.

From an address by John W. Gardner, president of the Carnegie Corporation, before the Association of Urban Universities in November, 1957.

Columbia CHRONICLE

A concise review
of recent news
from
Columbia University

Four of Columbia's deans will leave their present posts at the end of this academic year.

The Board of Trustees has accepted the resignation of Louis M. Hacker, Dean of the School of General Studies. Dean Hacker attributed his resignation to differences with those in the University who opposed his "open door" policy for General Studies, as discussed in the recent Macmahon Report on the Educational Future of the University (see page 51 opposite). The Dean stated that he disagreed with some of his colleagues "on the role, indeed the obligation, of a great university in a metropolitan region to keep an open door for all qualified men and women . . . whether or not they are degree-seekers or full-time students or have passed through admission gates."

President Kirk said that the Trustees had acted only after Dean Hacker had "repeatedly asked to be relieved of his administrative duties." The Dean will remain in the University as a professor of economics.

Jacques Barzun, now Dean of the Graduate Faculties, will become Dean of Faculties and Provost on July I. In this newly-created post, he will be responsible for educational administration and for liason in administrative affairs among the University's several schools and colleges. John Krout, now Vice President and Provost, will be freed to devote full time to his vice presidential duties. Dean Barzun's successor in the Graduate Faculties has not yet been appointed.

Lawrence H. Chamberlain, Dean of Columbia College, will retire in June to resume his former teaching duties in the Department of Public Law and Government.

"Dean Chamberlain's decision." said President Kirk, "which I have accepted most reluctantly, is based solely on his personal preference as to the way in which he now wishes to make his contribution to Columbia." The President explained that the Dean had accepted his position in 1950 with the understanding that he might wish to resume teaching after a term of years as Dean. The President, with the assistance of a committee of Columbia College faculty members, will select a successor whose name will then be submitted for approval to the University

Dr. Willard C. Rappleye, Dean of the Faculty of Medicine and the College of Physicians and Surgeons since 1931 and University Vice President for Medical Affairs since 1949, has announced his retirement, effective June 30. In acknowledging the event, President Grayson Kirk praised the Dean as "one of the country's more influential representatives of medical education and a leading interpreter of the profession's problems and objectives."

Dr. Rappleye will be succeeded by Dr. Howard C. Taylor, Jr., a 1924 graduate of P&S, who has been professor and chairman of the department of Obstetrics and Gynecology since 1946.

The University has announced an increase in tuition fees, to take effect in September. The cost of each tuition point will be raised from \$30 to \$37, and the yearly fee for a full academic program will be increased by \$200. The annual tuition cost for a matriculating student is now \$1100. (The new charge will not apply in the Law School, where annual tuition was raised to \$1000 last year. Law students were assured at that time that there would be no further increase in the immediate future.)

The average Columbia College

undergraduate's budget will now be approximately \$2300 yearly, a sum officials call "about equal to that required at comparable institutions." Provision has been made for increased University-wide student aid: additional scholarships, fellowships, and grants-in-aid will be offered, and a survey taken of part-time employment opportunities on the campus.

In announcing the decision to raise the tuition fees, President Kirk emphasized that even with the increase, the average student in the University's several educational units still will pay only about fifty per cent of the cost of his education. "In a very real sense," he said, "every student now receives automatically a 'scholarship' at least equal to the tuition he pays."

"Perhaps the next step in the humanization of the family life of the businessman is to let the family know something about business, and to help them recognize that the work that makes a productive society run is worth paying attention to." So advised Dr. Margaret Mead, adjunct professor of anthropology, speaking recently to a group of Columbia Business School alumni.

Dr. Mead shared a platform at the alumni meeting with Jacques Barzun, Dean of the Graduate Faculties, William D. Patterson, associate publisher of the Saturday Review, and Richard Eells, General Electric's public policy research director.

Dr. Mead suggested that only by acquainting his family with his job and encouraging their interest and sense of participation can the businessman break down the pattern of attitudes which makes his work seem a threat to his family life.

Mr. Patterson, speaking on "Business and the Pictorial Arts," saw important implications in the emergence of American industry as a patron of fine art. "By industry's taking up the classic role of the church and the state as a primary patron of art in America," he contended, "it can be argued that an American version of the Renaissance is in the making, and that the final impact on art and public taste in this country will be both extensive and beneficial."

(continued on page 52)

SOME RECOMMENDATIONS FOR THE UNIVERSITY'S FUTURE

Over the past two years Columbia University has been the subject of an extensive study by a group-of its own faculty members, appointed as the President's Committee on the Educational Future of the University. This winter the committee—an independent group supported in this work by a grant from the Carnegie Corporation—made public their 282-page report on the University's health as an educational institution and their recommendations for its improvement. President Grayson Kirk reminded the press when the report was released that it "did not necessarily reflect the views of the University Administration," nor had it been expected to do so. For a time at least, several of the report's recommendations aroused controversy on the campus. The implication that the School of General Studies should sharply restrict its enrollment (see Item 2) was based upon principles over which General Studies Dean Louis M. Hacker subsequently resigned his office (see page 50). Chairman of the six-member President's Committee was Professor Arthur M. Macmahon. Below are a few of the salient points in the Report:

- (1) The University should establish a new coeducational college in science and engineering. The new college would offer a three-year program leading toward graduate work in the School of Engineering and the Faculty of Pure Science. Following a curriculum closely tailored to the disciplines of science and engineering, the new school would nevertheless require its students to study the humanities and social sciences "in the same amount as is minimally required of students in Columbia College" and would award a Bachelor of Arts degree. The course of study would consist of subjects "that have a general, rather than a narrow range of applicability," and would emphasize "basic theory" rather than the applications of science and engineering (which are normally taught in graduate institutions). The student body of the new college would be held to about 1,200 and "ought never to exceed Columbia College in size."
- (2) The School of General Studies should be operated as a "coherent college for adults," with more rigorous entrance requirements. The report seems to imply a recommended curtailment of the number of non-matriculating students (of 6,400 students enrolled at present. only about 1,400 are matriculating toward the school's Bachelor of Science degree), and recommends purging the G. S. curriculum of all "narrowly vocational courses." The school should be given a new name containing the word "college," should observe a minimum age limit for entrance (no less than twenty-two), and should be maintained at a "moderate" size hereafter, growing beyond its present number of matriculating students only as it may maintain a high quality of students and instruction. "The School of General Studies as an undergraduate college cannot be regarded as a mere educational catchall," says the Report, and must be conducted as a "thoroughgoing liberal arts college" for adults. Its faculty should be made up largely of "full-time members of the University's full-time teaching personnel."
- (3) The University must spend at least \$100,000,000 on new buildings. These would include a dormitory and social center, combined in one building, for graduate students; a new classroom and staff office building; and housing for married graduate students.
- (4) Columbia should achieve and maintain the highest median salary for full professors in the United States,

- even though this may necessitate the doubling of present salaries in the next decade. Salaries for all other faculty ranks should be "fully competitive with other comparable institutions." At present the average salary of \$10,500 paid to full professors at Columbia is the third highest in the nation, as is the \$7,700 median salary paid to associate professors.
- (5) The alarming deterioration of the Columbia neighborhood must be halted both for the sake of its present inhabitants and the institutions that occupy it and to encourage more staff members and students to live near the University. The Report describes the neighborhood between 110th and 125th Streets as in large part inhabited by "transient and rootless" people, the area having undergone "major shifts in population."
- (6) The Graduate Faculties, to avoid wasting time and facilities and to arrest the devaluation of the Ph.D. and M.A. degrees, should administer stricter admissions standards and should require the completion of both course work and dissertation for the Ph.D. within four calendar years and the completion of the full program for the M.A. in one calendar year.
- (7) A "far-reaching" program of action should be undertaken to arrest the "loss of prestige" of some of Columbia's graduate departments and to remove what the Report calls "increasing difficulties" in attracting the most eminent scholars and promising students. The Report cites three studies made since 1925 in which Columbia was rated either second or third among graduate institutions in the quality of her departments.
- (8) The number of faculty members serving on the University Council, the crucial committee in the University's administration, should be increased; they should be elected by their colleagues and at no time be outnumbered on the Council by administrative officials.
- (9) The educational standards and procedures of Teachers College should be thoroughly investigated by a committee of both University and Teachers College faculty members to determine whether these standards and procedures "can be brought into conformity with those that are recommended for all graduate instructional and research divisions of the University."

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Mr. Eells examined the relationship of "The Modern Corporation and the Political Arts." Noting "an urgent need for a more exact knowledge of the role of the modern corporation as a dynamic and a major social institution, in addition to its obvious primary economic role," he urged the development of "a science of corporate polity," which would illuminate business as a social force.

Dean Barzun, describing how "The Humanist Looks at the Businessman," warned that in recent times the "manly virtues" of the practical man—as a traveler, a builder, a go-between, and generally a non-partisan promoter of innovation—have been endangered by "the false intellectuality of his daily life."

Today's businessman, said the Dean, "stands in peril of abstract nonsense, of pseudo-scientific rigmarole, in a word, of Guff. The country cannot afford to let the once-practical man become woolly-minded and forget that his duty is not only to sell farming machinery but to call a spade a spade."

Just over two centuries ago, the Honorable Joseph Murray, known in historical records as "the most considerable Lawyer here in his Time," bequeathed to three-year-old King's College one of the finest private collections of books in New York Province. From these several hundred volumes on the law, of which sixty-four survive, have grown the Columbia University Libraries, with their combined 3,000,000 volumes, serving 26,000 students and 7,000 faculty

and staff members.

Many volumes of the original Murray bequest have gone astray—some, it is said, carried off by British soldiers during the Revolution to be bartered for grog—but the surviving books have been on exhibition this spring, together with the newly acquired John Jay papers, during the Libraries' 200th anniversary celebration. The exhibit is under the supervision of Roland Baughman, head of Special Collections, who reports the discovery of an error made in the first decade of the Library's life. Among the John Jay papers on exhi-

bition is the King's College Master of Arts diploma granted to Jay in 1767. The document is dated "Die mensis Maii Nonogesimo Annoque Domini Millesimo septimo." One visitor to the exhibit queried: "Does my Latin fail me, or did John Jay really receive his M.A. on a May the 90th?"

Mr. Baughman agreed with the amateur Latinist that the date was indeed incorrect. Jay himself was apparently not confused: "May 19, 1767" is written on the back of the diploma in what is taken to be the graduate's own handwriting.

"Project Iceskate"—another IGY expedition—this winter found 15 Columbia scientists riding an ice pack which they hope will eventually float over the North Pole. The expedition, over a year old now, has yielded a mass of new Arctic data, some of it quite unexpected.

Using a special camera developed by Dr. Edward M. Thorndike, research associate in geology at Columbia's Lamont Observatory, the explorers have produced some puzzling photographs of the ocean floor, photographs which show the tracks of some kind of thus-far unidentifiable marine life up near the Pole.

"Tracks like that, if made by sea snails, would have a burrow at one end and a snail at the other," said Dr. Kenneth Hunkins, a Lamont geophysicist who examined the photographs. "Only this time there is nothing. We don't really know what they are . . ."

Other pictures show large rocks on the ocean floor where no rock formations apparently exist. The scientists assume that these rocks were floated out on ice floes and sank when the ice melted.

For a time, the research party was perplexed by more than underwater phenomena: Two polar bears visited their airplane runway, conducted their own inquiry into the runway's electrical apparatus, and managed to plunge the runway into total darkness. Ever-precise, the scientists ascertained that the tracks of one bear measured 11" x 7" and that the other's were slightly smaller.

